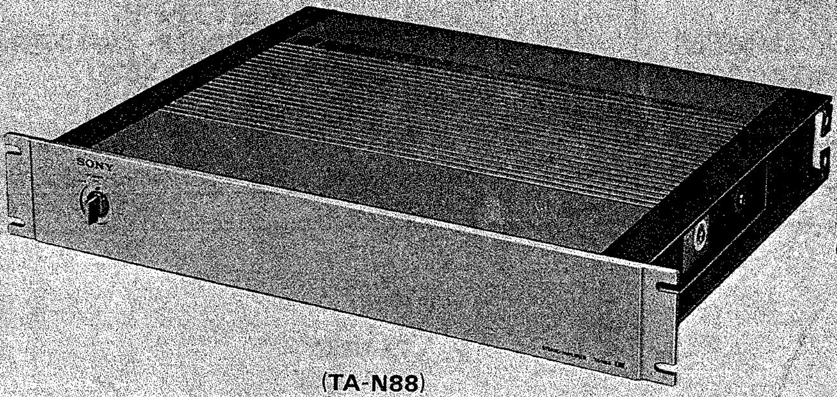
TA-N88/N88B

TA-N88 (Panel : Silver)

US Model
AEP Model

TA-N88B (Panel : Black)

UK Model
AEP Model
US Model
Canadian Model



(TA-N88)

STEREO POWER AMPLIFIER

SPECIFICATIONS

GENERAL

Power Requirements:	90 – 130V ac, 50 – 400Hz (US, Canadian model) 220 – 240V ac, 50 – 400Hz (AEP, UK model) 110 – 140V dc (US, Canadian model) 240 – 300V dc (AEP, UK model)
Power Consumption:	135W (US, Canadian model) 550W (AEP model) 1030W (UK model)
Dimensions:	Approx. 480 (w) x 80 (h) x 360 (d) mm $18\frac{7}{8}$ (w) x $3\frac{1}{8}$ (h) x $14\frac{1}{4}$ (d) inches including projecting parts and controls
Weight:	Approx. 11kg, 23 lb 6 oz (net) 13kg, 28 lb 4 oz (with shipping carton)

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND ⚠ MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ !

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY.

POWER AMPLIFIER SECTION

Continuous RMS Power Output (rated output) (Less than 0.5% total harmonic distortion):	Both channels driven simultaneously At 20 – 20,000Hz 160 + 160W (8Ω) According to DIN45500 160 + 160W (8Ω)
Damping Factor:	20 (8Ω, 1000Hz)
Harmonic Distortion:	Less than 0.5% at rated output
IM Distortion: (60Hz : 7kHz = 4 : 1)	Less than 0.1% at rated output
Frequency Response:	5 – 40,000Hz $^{+0.5}_{-1}$ dB
S/N Ratio:	Greater than 110dB, short-circuited input
Residual Noise:	Less than 100μV (8Ω, weighting network A)
Inputs:	INPUT Sensitivity 1.4V (for rated output) Impedance 50kΩ
Outputs:	SPEAKER Accept speakers of 8 – 16Ω

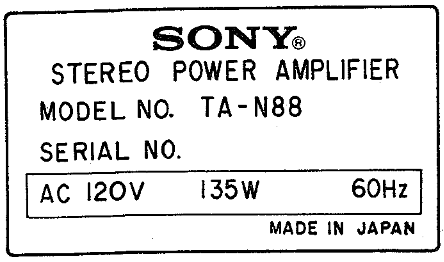
SONY®

SERVICE MANUAL

MODEL IDENTIFICATION

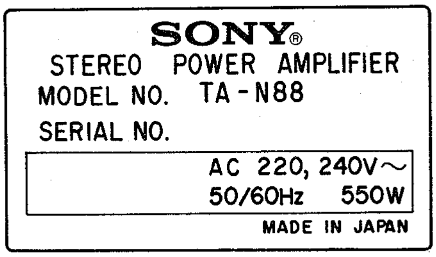
– Specification Label –

TA-N88
US model



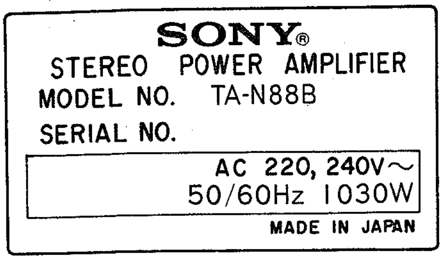
SONY®
STEREO POWER AMPLIFIER
MODEL NO. TA-N88
SERIAL NO.
AC 120V 135W 60Hz
MADE IN JAPAN

TA-N88
AEP model



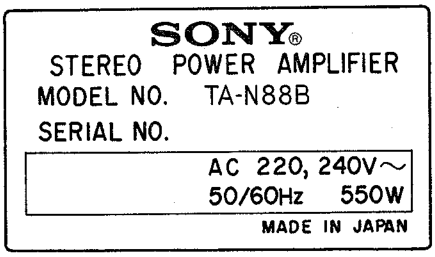
SONY®
STEREO POWER AMPLIFIER
MODEL NO. TA-N88
SERIAL NO.
AC 220, 240V~
50/60Hz 550W
MADE IN JAPAN

TA-N88B
UK model



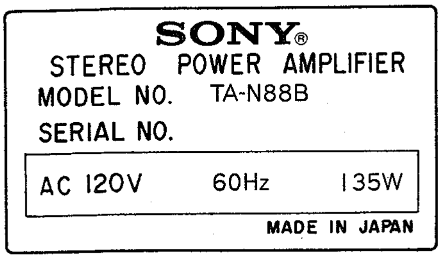
SONY®
STEREO POWER AMPLIFIER
MODEL NO. TA-N88B
SERIAL NO.
AC 220, 240V~
50/60Hz 1030W
MADE IN JAPAN

TA-N88B
AEP model



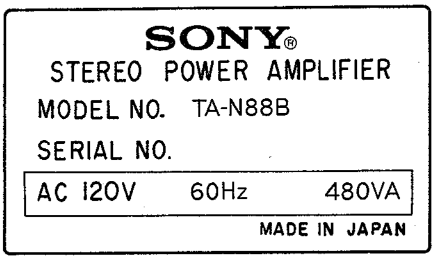
SONY®
STEREO POWER AMPLIFIER
MODEL NO. TA-N88B
SERIAL NO.
AC 220, 240V~
50/60Hz 550W
MADE IN JAPAN

TA-N88B
US model



SONY®
STEREO POWER AMPLIFIER
MODEL NO. TA-N88B
SERIAL NO.
AC 120V 60Hz 135W
MADE IN JAPAN

TA-N88B
Canadian model



SONY®
STEREO POWER AMPLIFIER
MODEL NO. TA-N88B
SERIAL NO.
AC 120V 60Hz 480VA
MADE IN JAPAN

SECTION 1
OUTLINE

1-1. SERVICING NOTE

1. This set is utilizing pulse circuitry. Use an oscilloscope having a bandwidth of wider than 10MHz.
2. Be sure to discharge current completely before starting repair. This set uses V-FETs. Also this set utilizes 140-V voltage in the power supply and ±120-V voltage in the amplifier section. Accordingly, not only V-FETs but also many other components may easily be damaged if any component lead wires or pattern foils are inadvertently shorted out by a screwdriver or a soldering iron due to the redidual charge in the power-supply capacitors even when the power is turned off.
   To prevent the damage of these components, be sure to discharge electrolytic capacitors, after turning the power off, in the power supply as shown in Fig. 1 every time the check or repair is required.

Note: All resistors are about 10 ohms.

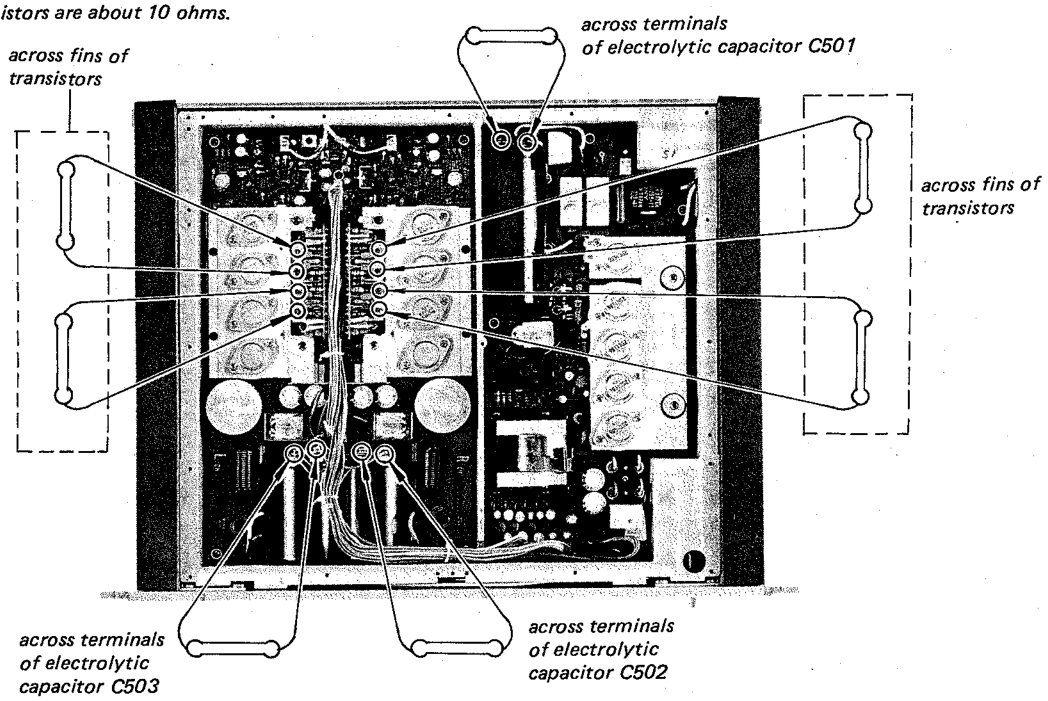
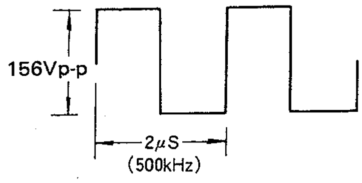

across fins of transistors
across terminals of electrolytic capacitor C501
across fins of transistors
across terminals of electrolytic capacitor C503
across terminals of electrolytic capacitor C502

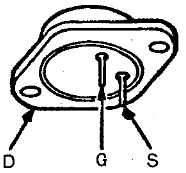
Fig. 1

3. Power Supply Checking
   a) ±78-V voltages should present on C502 and C503. Voltage adjustment can be made by RT401.
   b) If voltages on C502 and C503 cannot be adjusted by RT401 and higher voltages of about ±100V are present, check the switching transistor Q401 in the power supply.
   c) If voltages do not present on C502 and C503, check Q409 through Q412 of the inverter circuit in the power supply.
4. Power Amp Checking
   a) Check waveform at the drains of V-FETs of each channel. The following waveform should be obtained.


156Vp-p
2μS
(500kHz)

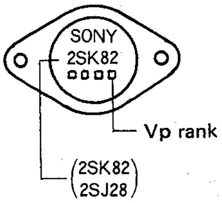
b) If either of the L- or R-channels is out of order, the relay RY101 or RY151 of the associated channel opens. In this condition, no sound outputs come out from both channel's SPEAKER terminals.

5. Replacing V-FETs
   a) Completely discharge the power supply electrolytic capacitors as outlined in 2 above.
   b) Remove V-FET by removing screws.
   c) Check resistance readings of each two electrodes of V-FET using a VOM as follows.



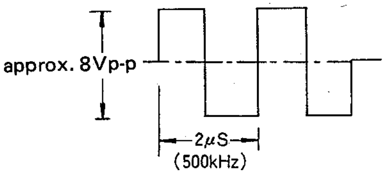
VOM range: x 1Ω
GOOD FETs show the following.
S-D : 1 – 2Ω
S-G } : diode characteristic
D-G

When replacing the two P-channel V-FETs 2SK82 and/or the two N-channel V-FETs 2SJ28 in each channel, use two matched ones which have the same Vp (pinch-off voltage)-rank figure printed on them as shown below. The fluctuation of the Vp rank of the two can be acceptable on one-rank-difference basis.

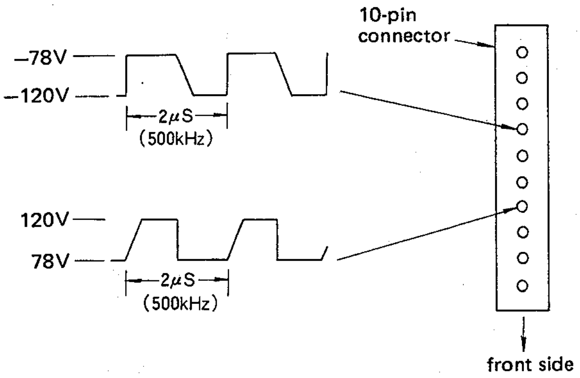


Do not install the new V-FETs yet until instructed to do so later.

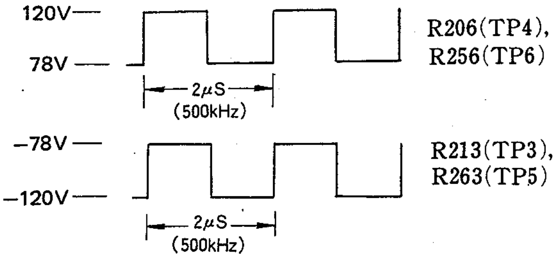
   d) Remove the power-drive board of the associated channel by removing two screws. Check the fusible resistors on the power-drive board. Replace those defective fusible resistors.
   e) Remove the power-amp board of the associated channel by removing ten screws. Replace the tantalum capacitor C104 220/6.3V (L-CH) or C154 220/6.3V (R-CH).
   f) Reattach the power amp board on the chassis.
   g) Temporarily make a solder connection to the lead of R119 100kΩ (L-CH) or R169 100kΩ (R-CH) for a checking purposes.
   h) Now the set has the power-drive board and V-FETs removed aside.
   Turn POWER ON.
   i) Check the waveform at TP1 (L-CH) and TP2 (R-CH) for that shown below.
   Adjust RT101 (L-CH) or RT151 (R-CH) to make the levels of the positive and negative halves equal.
   Adjust T301 to obtain the specified pulse width.



   j) Check waveforms at pins 4 and 7 of the 10-pin connector to which the power-drive board connects.



   k) Turn POWER OFF.
   l) Install the power-drive board and V-FETs in place. Do not fasten V-FETs with screws yet, i.e., the drains are in the open-circuit condition.
   m) Turn POWER ON.
   n) Check waveforms at TP3, TP4 (L-CH) and TP5, TP6 (R-CH) as shown below.



   o) Turn POWER OFF and completely discharge electrolytic capacitors as outlined above.
   p) Fasten V-FETs with screws. Now the drains of V-FETs are electrically connected.
   q) Remove the solder joint made to R119 or R169 in step g).

1-2. CIRCUIT DESCRIPTION

1-2-1. Amplifier Section

a) High-Speed Input Attenuator

This attenuator is composed of FETs. This attenuator protects the amplifer by attenuating the input signal at a response speed of faster than 1μsec when SPEAKER terminals are errorneously shorted out or when an overloading input signal is applied, in both cases the current drain in the power-amplifier output stage V-FETs excesse the rated value.

b) Carrier Oscillator

This oscillator is of the Colpits configuration, and generates a 500kHz signal.

This 500kHz signal is applied to the P-channel dual-transistor differential amplifier and this amplifier makes an even-duty square wave. This square-wave signal is then applied to the emitter followers for both the L and R channels. Thus the carrior signal is applied to the integrating circuit.

c) Integrating Circuit

To the input of the mirror integrating circuit, audio and 500kHz carrior signals are applied. In this integrator, a highly-accurate integration is made by subtracting the input and carrier signal component from the output signal.

Accordingly, this circuit has a very-wide bandwidth of dc – several MHz to transfer the audio and carrior signals. The first-stage of this integrator is composed of a dual FET which is connected to a current source. The second stage is composed of PNP-type transistors which has also a current source connected to it.

d) High-speed Comparator

An IC is used for the comparator to fit the very-high-speed response characteristics. This IC is composed of three differential amplifiers connected in series. This comparator functions with the input-level difference of less than 1mV, and the square-wave PWM output signal is obtained with the speed of less than 20nsec.

e) Power Driver

This circuit is to drive the final V-FETs for voltage amplification. This driver receives the PWM output signal of about 8Vp-p and amplifies it to 40Vp-p which is required to drive the gates of V-FETs in the power amplifier.

Transistors with a high f_T are used in a switching manner to maintain an ample driving capability, because the gate of V-FET has a rather large capacitive input load.

f) V-FET Switching Circuit

The newly-developed and high-power switching-purpose V-FETs are used in the parallel pushpull configuration. These V-FETs enable high-power switching of up to 160V/10A at a response time of 50n sec.

g) Lowpass Filter

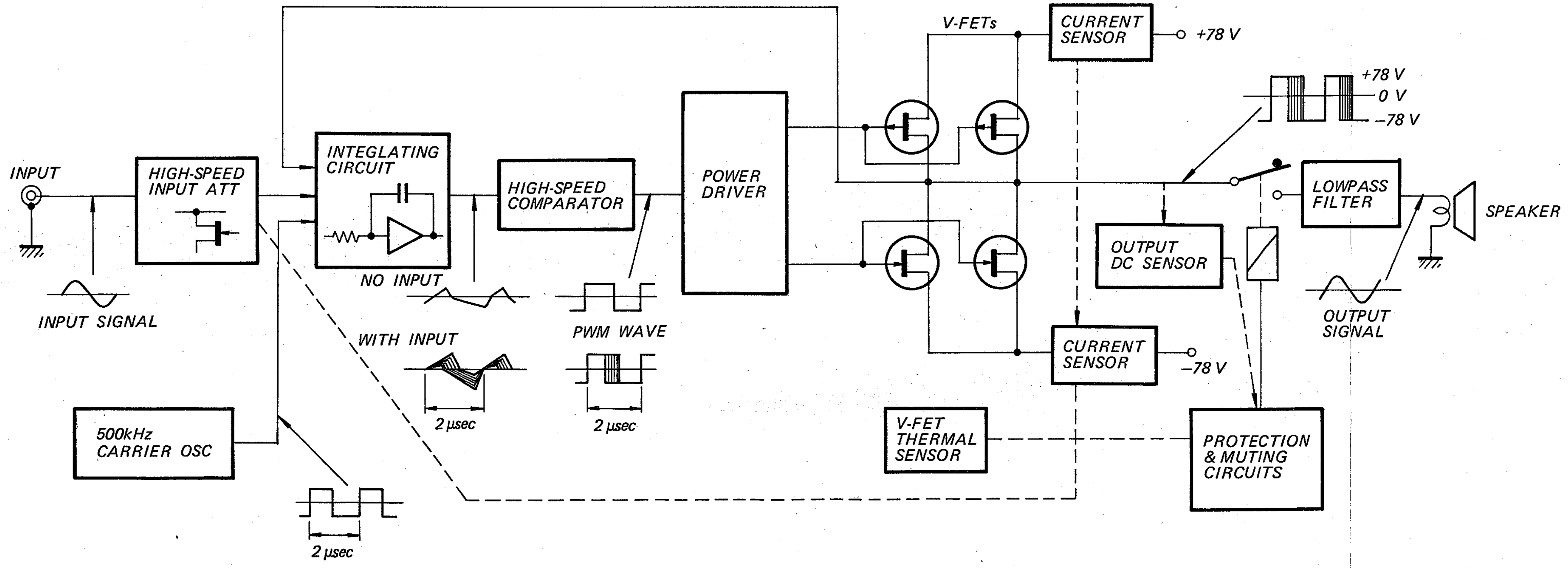
This filter is to draw the audio signal out of the pulse-width-modulated signal. This filter is composed of choke coils and capacitors and has a low insertion loss. The frequency response of this set is determined by this filter.

Generally, the frequency response fluctuates according to the change of the load impedance. This lowpass filter is designed to have a good frequency response and phase characteristics for general speakers of 8Ω nominal to maintain a good audio.

h) Protectors

This amplifier is equipped with 1) current sensor to protect V-FETs from damaging in case of short circuiting, large-current output operation or a over-the-rating operation; 2) thermal sensor to cut the speaker circuit off when the temperature of V-FET exceeds 90°C (194°F) under a high ambient temperature, a long and continuous operation or during measurement;

3) dc sensor to protect speakers in case of generation of dc component under dc input or an abnormal circuit operation.



1-2-2. Pulse-locked Power Supply

The power transfer capability of the core-type power transformers increase in proportion to the line frequency used. However, most of the conventional core-type power transformers are used under the line frequency of 50Hz or 60Hz, and they are big in size and heavy in weight.

By utilizing the pulse-locked power supply technique, it is quite possible to make very-small, light-weight and large-capacity power supplies using built-in 20kHz generator.

a) Primary Rectifying Circuit

In ac operation, ac input of 90 to 130V or 220 to 240V is bridge-rectified and the output of 130 to 168V dc is obtained.

In dc operation, dc input of 110 to 140V or 240 to 300V is directly used regardless of the input polarities.

b) Chopper-type Voltage Regulator

The 20kHz control pulse drives the switching transistors and a constant output voltage of 110Vp-p is obtained.

c) Pulse-width Control Circuit

This circuit utilizes the square wave generated in the 20kHz power oscillator to make a triangle wave. The level of the triangle wave is compared with the internal reference voltage and a control pulse is made to maintain the output voltage of the chopper-type voltage regulator constant.

d) 20kHz Power Oscillator

This circuit generates a stable and high-power 20kHz pulse by using four high-power switching transistors in the full-bridge self-oscillating circuit configuration.

e) Ferrite-core Transformer

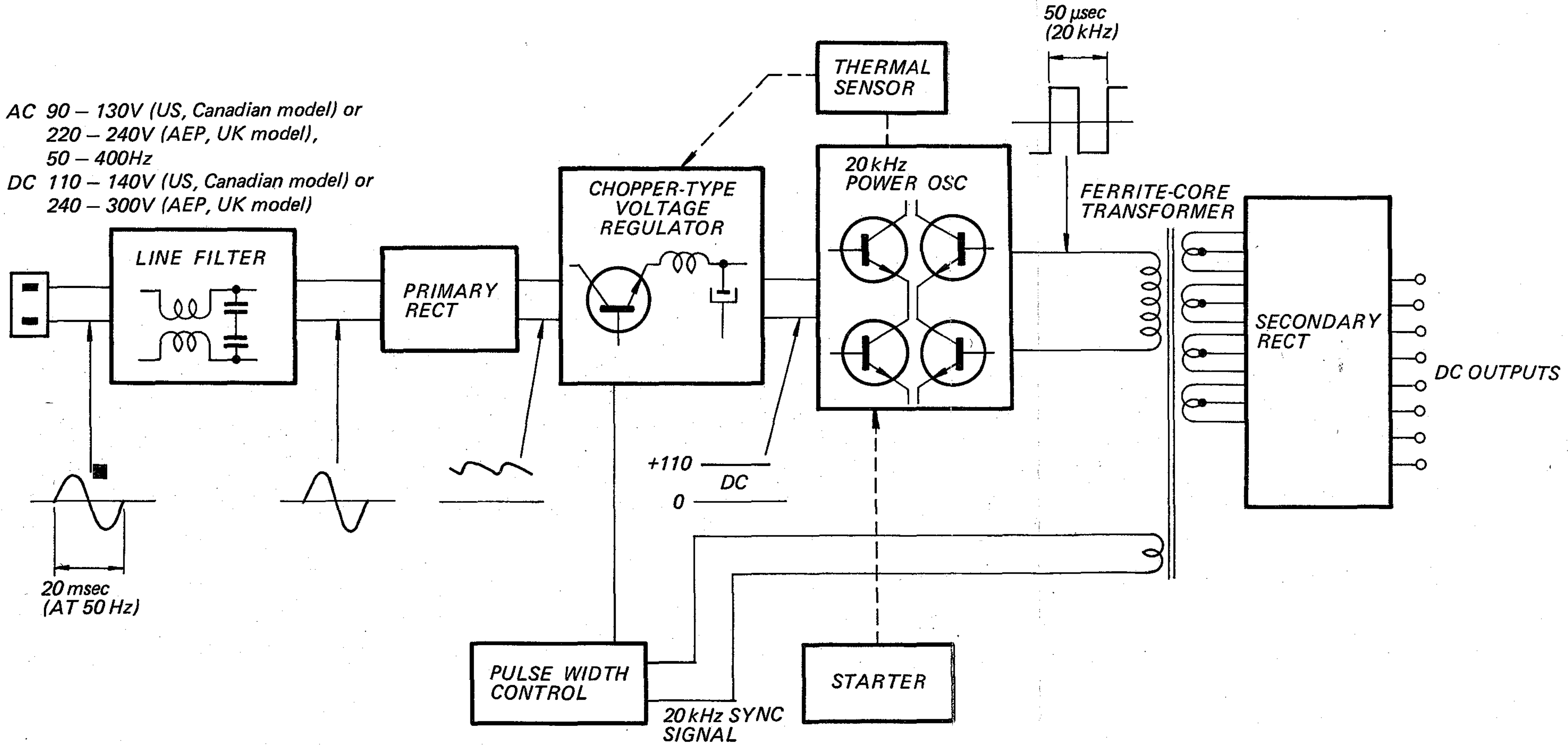
The ferrite-core transformer transfers the 20kHz pulse signal and this serves the functions of the conventional power transformer. This transformer features a low-loss, high-permeability and a high-saturation magnetic-flux density operation at the high frequency of 20kHz.

This transformer also has a doubled electrostatic shield in itself to reduce the radiation of the switching noise to a minimum possible value.

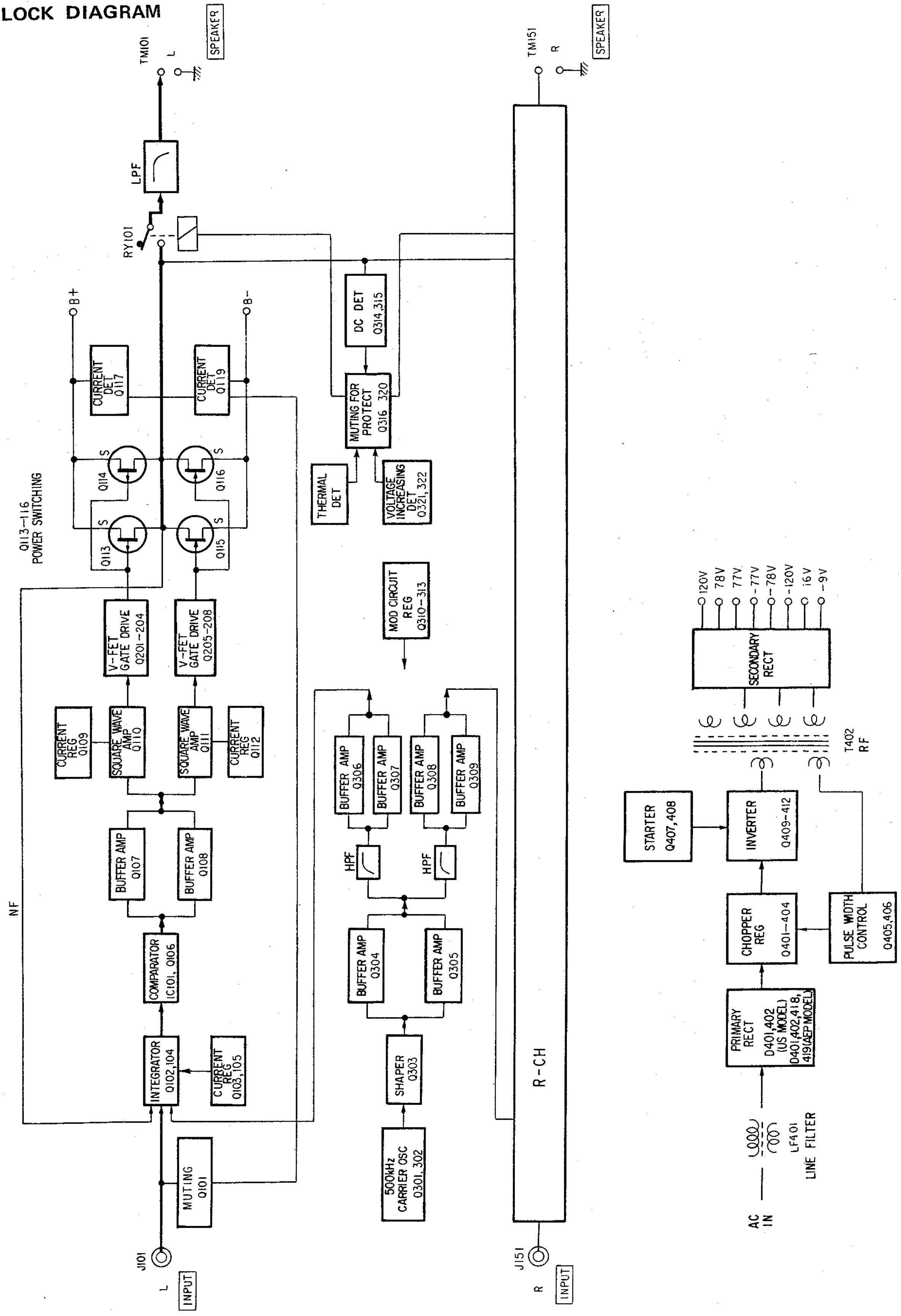
This transformer has a power-transfer capability of sixty times that of the conventional power transformers for 50Hz- or 60Hz-line use, and also has a superior voltage regulation between the primary and secondary windings by shortening the total length of wire of the windings.

f) Secondary Rectifying Circuit

This circuit provides several kinds of dc voltages needed for the respective stages of the power amplifier. These voltage are well regulated and very stable.


AC 90 – 130V (US, Canadian model) or
220 – 240V (AEP, UK model),
50 – 400Hz
DC 110 – 140V (US, Canadian model) or
240 – 300V (AEP, UK model)
LINE FILTER
PRIMARY RECT
CHOPPER-TYPE VOLTAGE REGULATOR
THERMAL SENSOR
20kHz POWER OSC
50 μsec (20 kHz)
FERRITE-CORE TRANSFORMER
SECONDARY RECT
DC OUTPUTS
20 msec (AT 50 Hz)
+110
DC
0
PULSE WIDTH CONTROL
20 kHz SYNC SIGNAL
STARTER

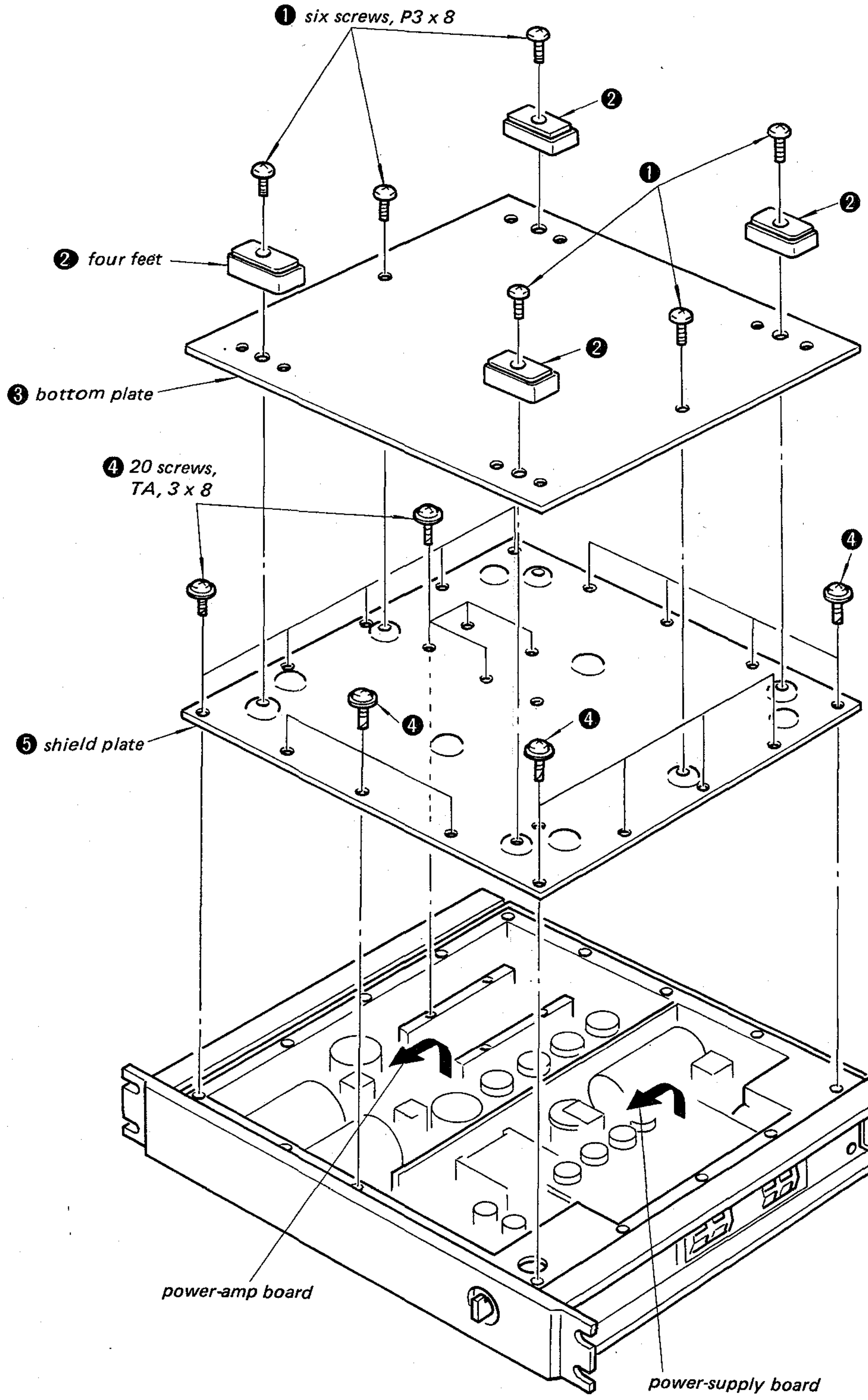
1-3. BLOCK DIAGRAM


SPEAKER
TM101
L
LPF
RY101
B+
B-
CURRENT DET Q117
CURRENT DET Q119
Q113-116 POWER SWITCHING
Q113
Q114
Q115
Q116
S
V-FET GATE DRIVE Q201-204
V-FET GATE DRIVE Q205-208
CURRENT REG Q109
SQUARE WAVE AMP Q110
SQUARE WAVE AMP Q111
CURRENT REG Q112
BUFFER AMP Q107
BUFFER AMP Q108
NF
COMPARATOR IC101, Q106
INTEGRATOR Q102,104
CURRENT REG Q103,105
MUTING Q101
J101
L
INPUT
DC DET Q314,315
MUTING FOR PROTECT Q316 320
THERMAL DET
VOLTAGE INCREASING DET Q321,322
MOD CIRCUIT REG Q310-313
BUFFER AMP Q306
BUFFER AMP Q307
BUFFER AMP Q308
BUFFER AMP Q309
HPF
HPF
BUFFER AMP Q304
BUFFER AMP Q305
SHAPER Q303
500kHz CARRIER OSC Q301,302
TM151
R
SPEAKER
R-CH
J151
R
INPUT
120V
78V
77V
-77V
-78V
-120V
16V
-9V
SECONDARY RECT
T402 RF
STARTER Q407,408
INVERTER Q409-412
CHOPPER REG Q401-404
PULSE WIDTH CONTROL Q405,406
PRIMARY RECT D401,402 (US MODEL) D401,402,418, 419(AEP MODEL)
AC IN
LF401 LINE FILTER

SECTION 2
DISASSEMBLY

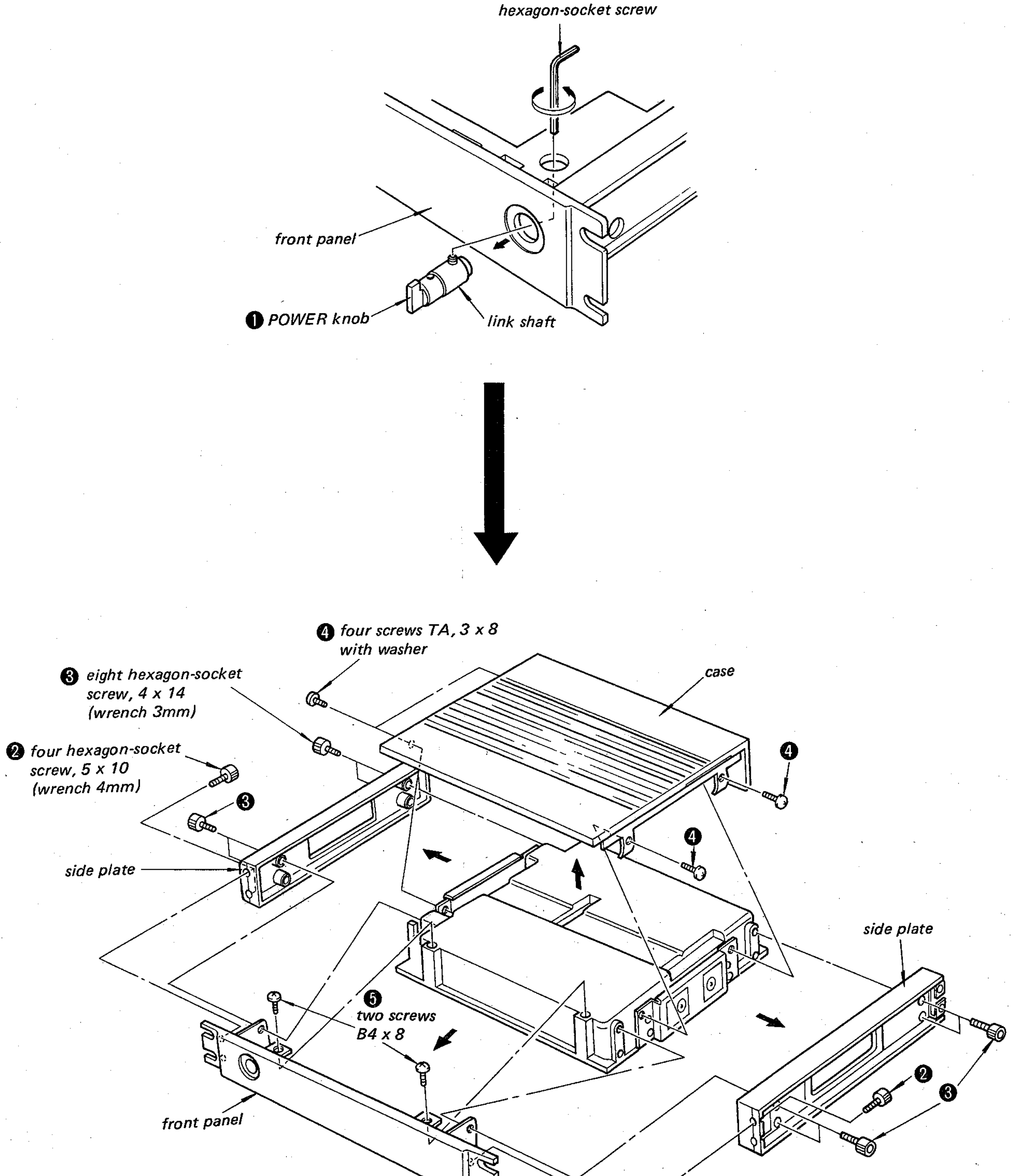
Note: Remove in the numerical order.

BOTTOM AND SHIELD PLATE REMOVAL


❶ six screws, P3 x 8
❷
❶
❷
❷ four feet
❷
❸ bottom plate
❹ 20 screws, TA, 3 x 8
❹
❺ shield plate
❹
❹
power-amp board
power-supply board

Note: Under this condition, component sides of circuit board can be checked. To check foil side(s), remove screws which fasten circuit board(s) and turn the board(s) in the direction shown by the arrow(s).

PANEL REMOVAL


hexagon-socket screw
front panel
❶ POWER knob
link shaft
❹ four screws TA, 3 x 8 with washer
case
❸ eight hexagon-socket screw, 4 x 14 (wrench 3mm)
❷ four hexagon-socket screw, 5 x 10 (wrench 4mm)
❸
❹
❹
side plate
side plate
❺ two screws B4 x 8
front panel
❷
❸

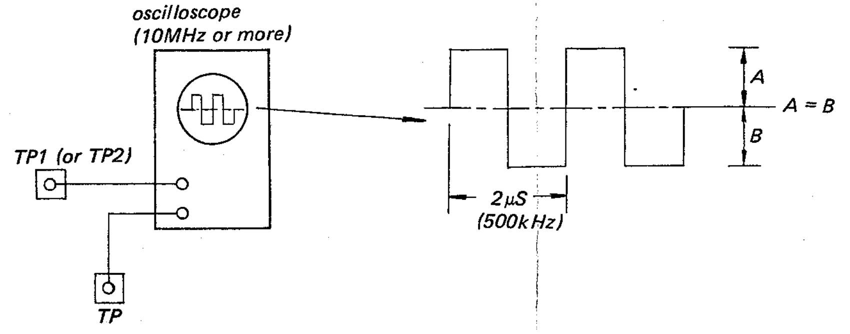
SECTION 3
ADJUSTMENTS

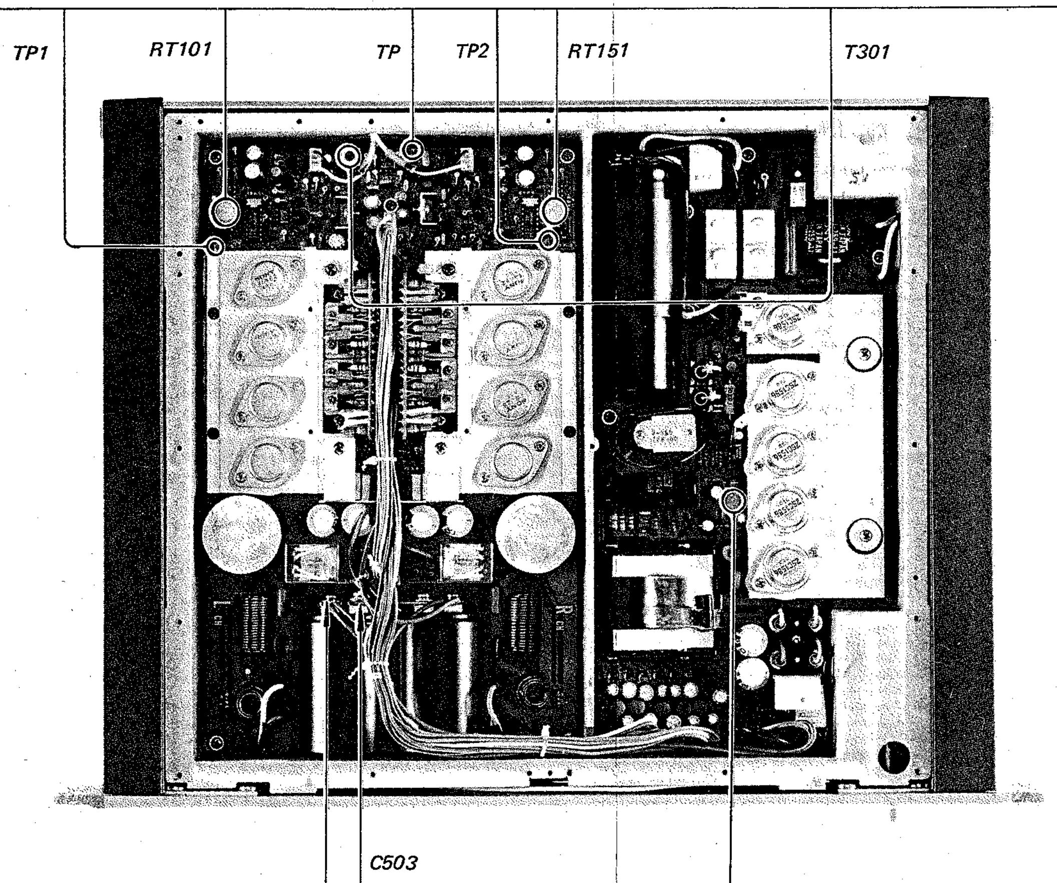
PULSE LEVEL ADJUSTMENT

Adjust RT101 (L-CH) and RT151 (R-CH) to make the positive and negative halves of the square wave at TP1 (L-CH) and TP2 (R-CH) equal.

OSCILLATION FREQUENCY ADJUSTMENT

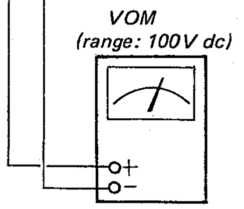
Adjust T301 so that the pulse width of the pulse at TP1 (L-CH) or TP2 (R-CH) becomes 2μsec (500kHz).


oscilloscope
(10MHz or more)
TP1 (or TP2)
TP
A
B
A = B
2μS
(500kHz)


TP1
RT101
TP
TP2
RT151
T301
C503

VOLTAGE ADJUSTMENT

Adjust RT401 for a 78V reading on the VOM.


VOM
(range: 100V dc)
+
−

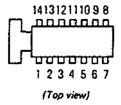
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAMS

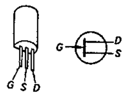
Replacement Semiconductors

For replacement, use semiconductors except in ( ).

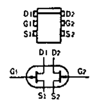
IC101, 151: CX034


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

Q101, 151: 2SK43-5 (2SK43-6)

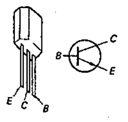


Q102, 152: 2SK58

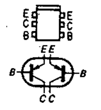

D1 G1 S1 D2 G2 S2
D1 D2
G1 G2
S1 S2

Q103, 153, 105, 155, 107, 157, 301, 304, 306, 308, 314–316, 321, 322, 408 : 2SC1364 (2SC634A)

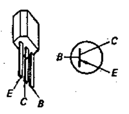
119, 169 : 2SC926A



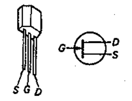
Q106, 156, 302, 406 : 2SA884


E C B E C B
EE
B B
CC

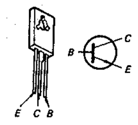
Q104, 154, 108, 158, 305, 307, 309, 317–320, 407 : 2SA678



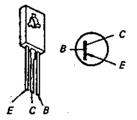
Q109, 159, 112, 162 : 2SK23A-940
310, 311 : 2SK23A-840 (blue)



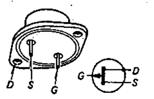
Q110, 160: 2SC1904



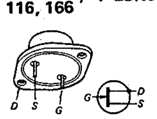
Q111, 161: 2SA899



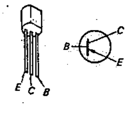
Q113, 163, 114, 164 : 2SJ28



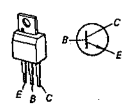
Q115, 165, 116, 166 : 2SK82



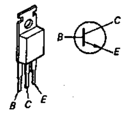
Q117, 167: 2SA639S



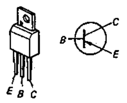
Q201, 251, 205, 255 : 2SC1124
Q402, 403 : 2SC1962 (US, Canadian model)



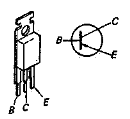
Q202, 252, 206, 256 : 2SC1173 (yellow)
Q313 : 2SC1061



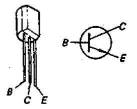
Q203, 253, 207, 257 : 2SA706



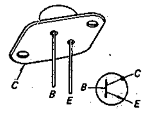
Q204, 254, 208, 258 : 2SA473 (yellow)
Q312 : 2SA671



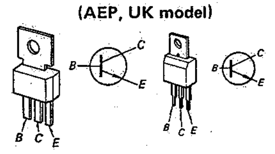
Q303: 2SC710



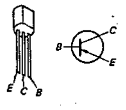
Q401, 409–412 : 2SC1586 (US, Canadian model) 2SC2190 (AEP, UK model)



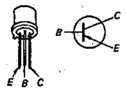
Q402, 403, 405 : 2SC1723 (2SC1810) (AEP, UK model)


B C E
B C E
B C E
B C E

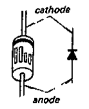
Q404: 2SA896 (US, Canadian model)



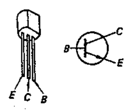
2SA911 (AEP, UK model)



D405: EQB01-09 (TA-N88)
D405, 421: EQB01-05 (TA-N88B) (EQA01-05R)

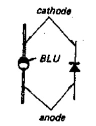

cathode
anode

Q405: 2SC1811 (US, Canadian model)

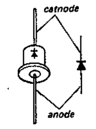


D108, 109, 158, 159 : S34 (TA-N88B: US, Canadian model)

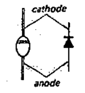
D101, 151: MV12N


cathode
BLU
anode

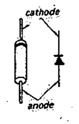
D408–411: S34


cathode
anode

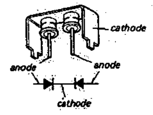
D102, 152, 103, 153, 412–417 : V09C
D401, 402, 418, 419 : U05G (AEP, UK model)


cathode
anode

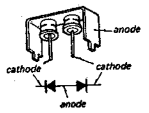
D106, 156, 107, 157, 201, 251, 202, 252 : 1S1587
D203, 253, 204, 254, 205, 255, 206, 256, D301, 302, 306, 307, D403, 406, 407 : 1S1555


cathode
anode

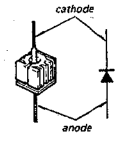
D401: S5151 (US, Canadian model)


cathode
anode
anode
cathode

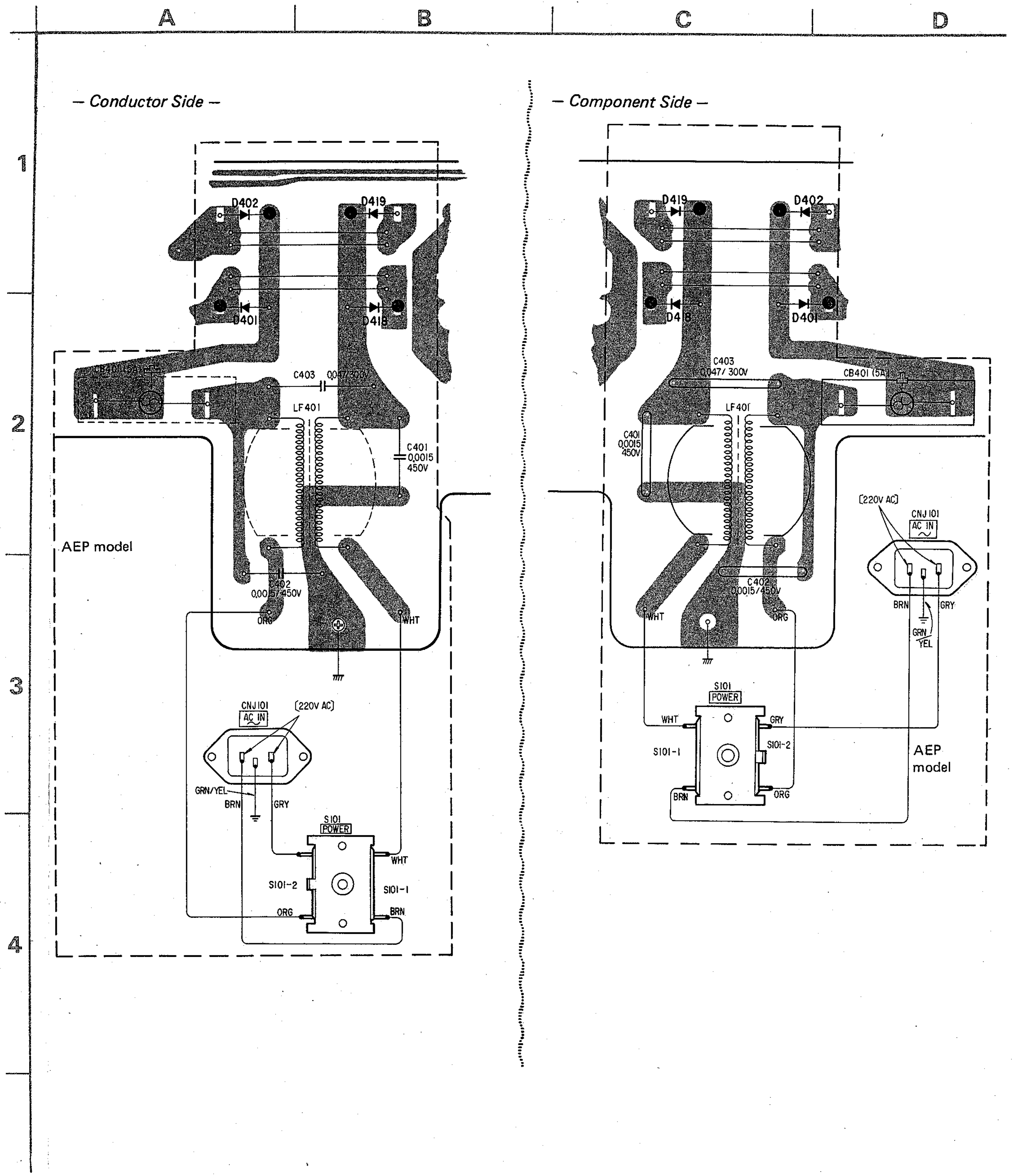
D402: S5151R (US, Canadian model)


anode
cathode
cathode
anode

D404, 420: UF3


cathode
anode

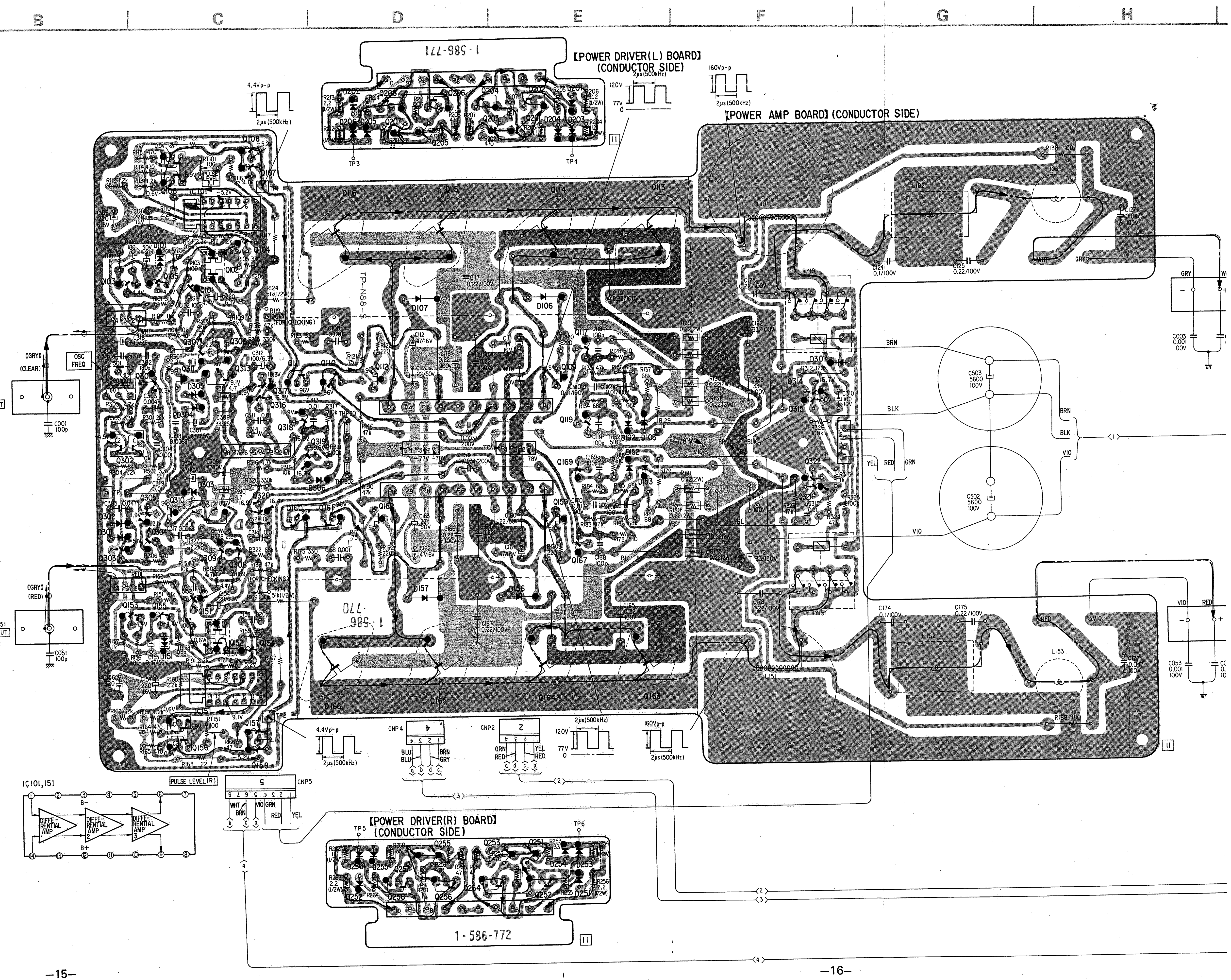
— Power Supply Input Section (TA-N88: AEP model) —

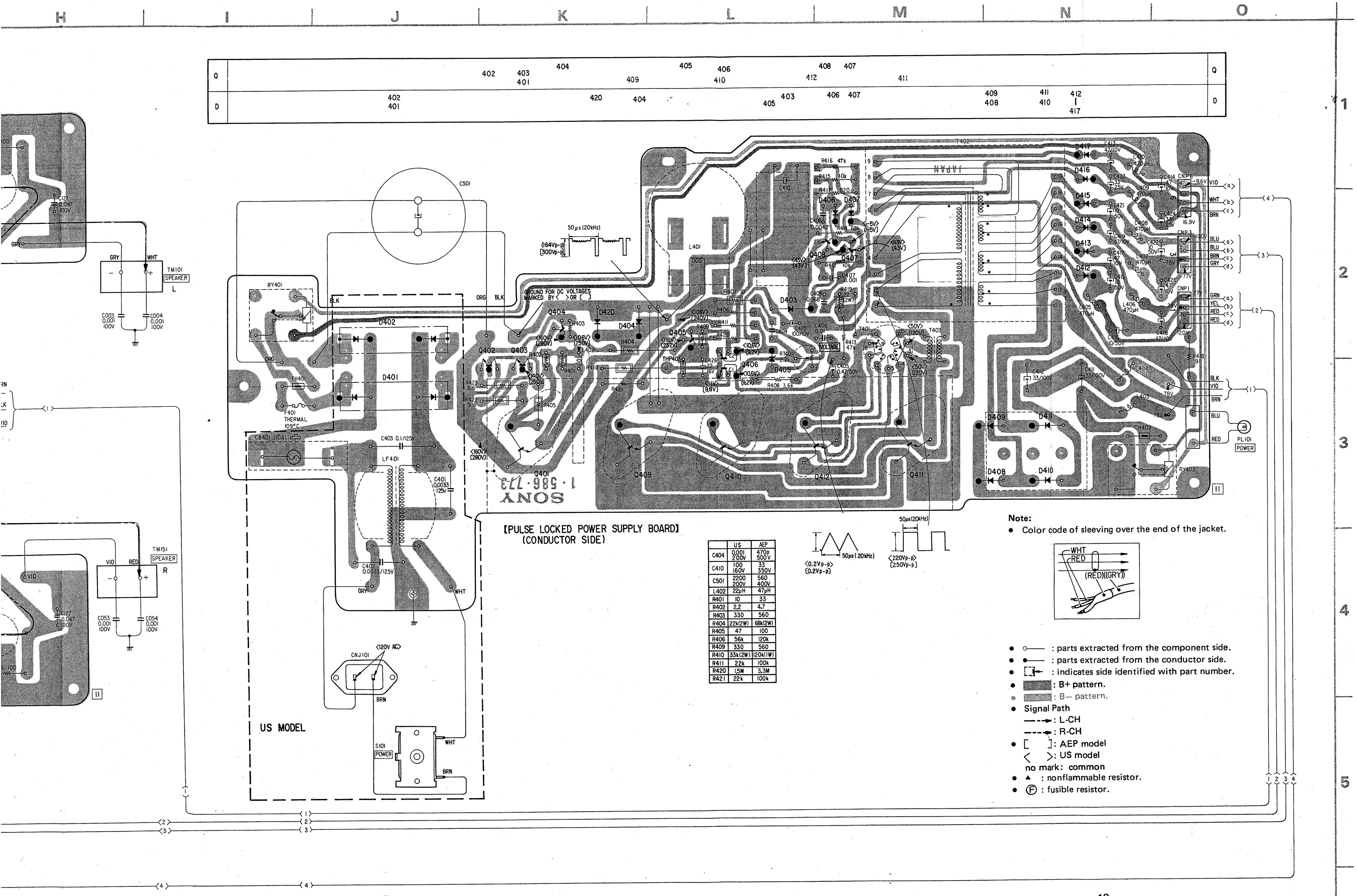

A
B
C
D
1
2
3
4
– Conductor Side –
– Component Side –
D402
D419
D401
D418
CB401 (5A)
C403 0.047/300V
LF401
C401 0.0015 450V
C402 0.0015/450V
ORG
WHT
AEP model
CNJ101
AC IN
(220V AC)
GRN/YEL
BRN
GRY
S101
POWER
WHT
S101-2
S101-1
ORG
BRN
GRN YEL
GRY
AEP model

4-2. MOUNTING DIAGRAM (2)

– Conductor Side –

Q, IC	D
208, 204 206, 202	202, 201
207, 203 205, 201	206, 204 205, 203
108	
106 107	
IC101	
116 115 114 113 104	
102	101
103, 105 101	
	107, 106
307, 306 117	
301, 311 313 111 110	307
109 317 112	305
316 314	304
315 318 119	102, 103
302 319	
169	152, 153
322	306
321	303
305, 310 312, 320 160, 161	302
159 304 162	301
303 167 309, 308	
151	157, 156
153, 155	
152 154	151
166 165 164 163 IC151	
156 157 158	
257, 253 255, 251	256, 254 255, 253
258, 254 256, 252	252, 251
Q, IC	D


A
B
C
D
E
F
G
H
1
2
3
4
5
1-586-771
[POWER DRIVER(L) BOARD]
(CONDUCTOR SIDE)
TP3
TP4
4.4Vp-p
2μs(500kHz)
120V
77V
0
160Vp-p
[POWER AMP BOARD] (CONDUCTOR SIDE)
[GRY]
(CLEAR)
OSC FREQ
J101
INPUT
L
C001
100p
[GRY]
(RED)
J151
INPUT
R
C051
100p
TP-N88-S
(FOR CHECKING)
PULSE LEVEL(R)
IC101, 151
DIFFE-RENTIAL AMP 1
DIFFE-RENTIAL AMP 2
DIFFE-RENTIAL AMP 3
B-
B+
CNP4
CNP2
CNP5
BLU
BLU
BRN
GRY
GRN
RED
YEL
RED
WHT
BRN
VIO
GRN
RED
YEL
C503
5600
100V
C502
5600
100V
BRN
BLK
YEL
RED
GRN
VIO
C003
0.001
100V
C053
0.001
100V
GRY
WHT
VIO
RED
[POWER DRIVER(R) BOARD]
(CONDUCTOR SIDE)
TP5
TP6
1-586-772
1-586-770


H
I
J
K
L
M
N
O
1
2
3
4
5
Q
D
402
403
401
404
405
406
408
407
409
410
412
411
420
417
C501
50μs (20kHz)
〈164Vp-p〉
[300Vp-p]
L401
RY401
BLK
ORG
D402
D401
TH401
F401
THERMAL
109°C
CB401 (10A)
C403 0.1/125V
LF401
C401 0.0033/125V
C402 0.0033/125V
GRY
WHT
CNJ101
〈120V AC〉
BRN
S101
POWER
US MODEL
Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
Q409
Q410
Q411
Q412
D403
D404
D405
D406
D407
D408
D409
D410
D411
D412
D413
D414
D415
D416
D417
D420
GROUND FOR DC VOLTAGES MARKED BY 〈 〉 OR [ ]
1-586-773
SONY
JAPAN
T401
T402
T403
THP401
VOLTAGE
RY402
TH402
CNP1
CNP3
CNP6
V10
WHT
BRN
BLU
GRY
GRN
YEL
RED
PL101
POWER
TM101
SPEAKER
L
TM151
R
C003 0.001 100V
C004 0.001 100V
C053 0.001 100V
C054 0.001 100V
C127 0.047 100V
C177 0.047 100V
50μs (20kHz)
〈0.2Vp-p〉
[0.2Vp-p]
50μs(20kHz)
〈220Vp-p〉
[250Vp-p]
WHT
RED
(RED)((GRY))

【PULSE LOCKED POWER SUPPLY BOARD】
(CONDUCTOR SIDE)

	US	AEP
C404	0.001 200V	470p 500V
C410	100 160V	33 350V
C501	2200 200V	560 400V
L402	22μH	47μH
R401	10	33
R402	2.2	4.7
R403	330	560
R404	22k(2W)	68k(2W)
R405	47	100
R406	56k	120k
R409	330	560
R410	33k(2W)	120k(1W)
R411	22k	100k
R420	1.5M	3.3M
R421	22k	100k

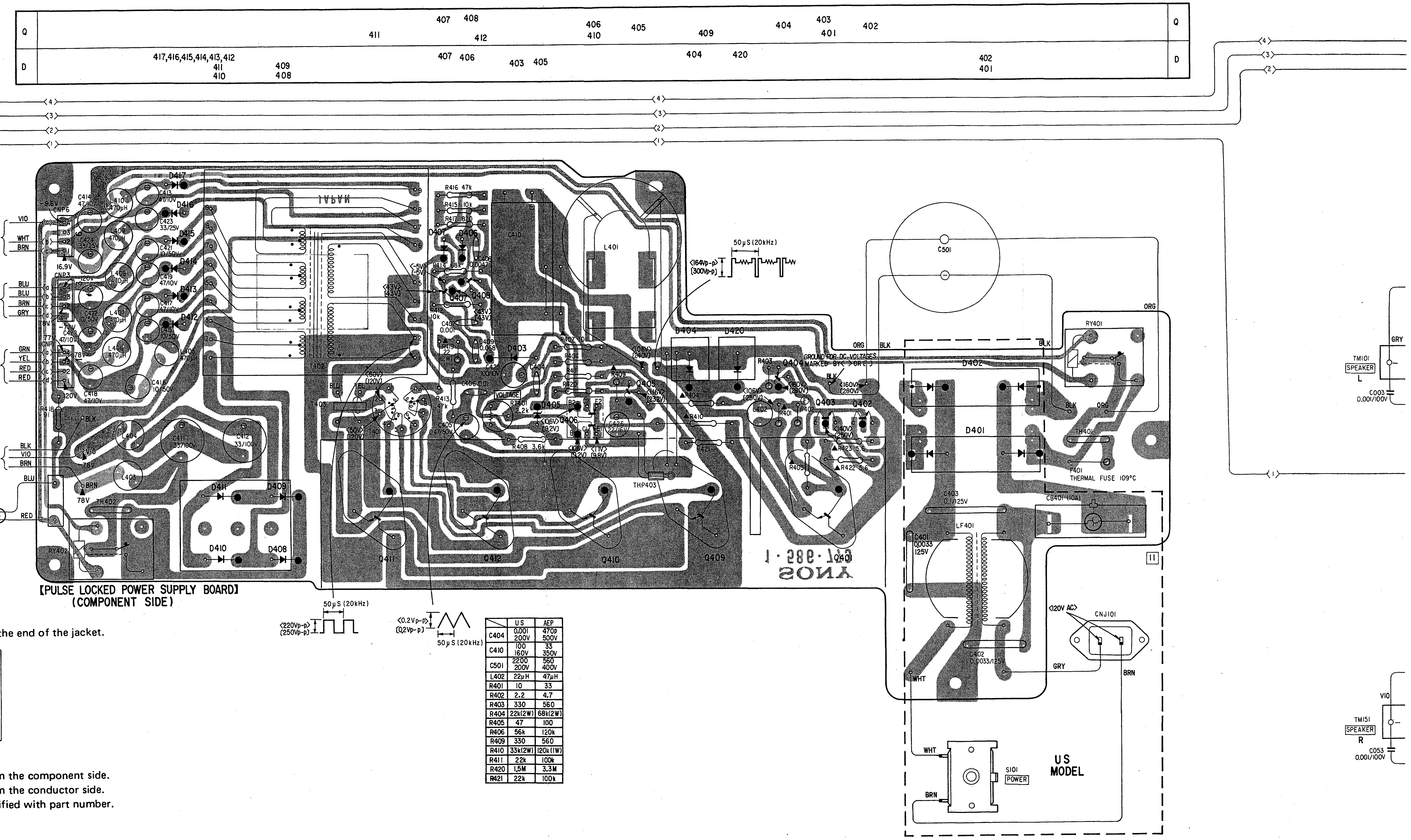
Note:

- Color code of sleeving over the end of the jacket.

- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- [ ]← : indicates side identified with part number.
- ▩ : B+ pattern.
- ▨ : B– pattern.
- Signal Path
  —-→ : L-CH
  ---→ : R-CH
- [ ] : AEP model
  〈 〉 : US model
  no mark: common
- ▲ : nonflammable resistor.
- Ⓕ : fusible resistor.

4-2. MOUNTING DIAGRAM

– Component Side –

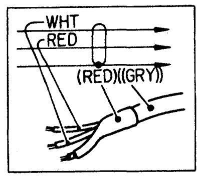

1
2
3
4
5
Q
D
407 408
411
412
406
410
405
409
404
403
401
402
417,416,415,414,413,412
411
410
409
408
407 406
403 405
404 420
402
401
VIO
WHT
BRN
BLU
BLU
BRN
GRY
GRN
YEL
RED
RED
BLK
VIO
BRN
BLU
RED
PL101
POWER
CNP6
CNP3
-9.5V
16.9V
120V
78V
-72V
C414 47/10V
L410 470μH
C413 47/10V
D417
D416
C423 33/25V
C424 33/25V
L409 470μH
D415
C421 33/50V
L408
D414
C419 47/10V
D413
C417 47/10V
L407 470μH
C420
D412
C422 10/50V
C415 47/10V
L406 470μH
C416 10/50V
L405 470μH
C418 47/10V
R418
L404
C411 33/100V
C412 33/100V
L403
TH402
RY402
D411
D409
D410
D408
JAPAN
R416 47k
R415 10k
R417 820
D407
D406
C410
R414 68k
C406 0.0047
Q407
Q408
R412 10k
C405 0.001
R419 22
Q403
R407 10
R411
VOLTAGE
R740
R406 3.6k
Q405
Q406
F2
F1
C426
R409
R408
Q405
THP403
Q411
Q412
Q410
Q409
L401
50μS (20kHz)
<164Vp-p>
[300Vp-p]
D404
D420
R403
Q404
GROUND FOR DC VOLTAGES MARKED BY < > OR [ ]
<160V>
[280V]
<160V>
[280V]
R410
R401
R402
R405
R420
R421
Q403
Q402
<140V>
[250V]
R423 5.6
R422 5.6
Q401
1-589-161
SONY
C501
ORG
BLK
RY401
D402
D401
TH401
F401
THERMAL FUSE 109°C
C403 0.1/125V
LF401
C401 0.0033/125V
C402 0.0033/125V
CB401 (10A)
<120V AC>
CNJ101
GRY
BRN
WHT
WHT
BRN
S101
POWER
US MODEL
<4>
<3>
<2>
<1>
TM101
SPEAKER
L
C003
0.001/100V
TM151
SPEAKER
R
C053
0.001/100V
VIO
50μS (20kHz)
<220Vp-p>
[250Vp-p]
<0.2Vp-p>
[0.2Vp-p]
50μS (20kHz)

[PULSE LOCKED POWER SUPPLY BOARD]
(COMPONENT SIDE)

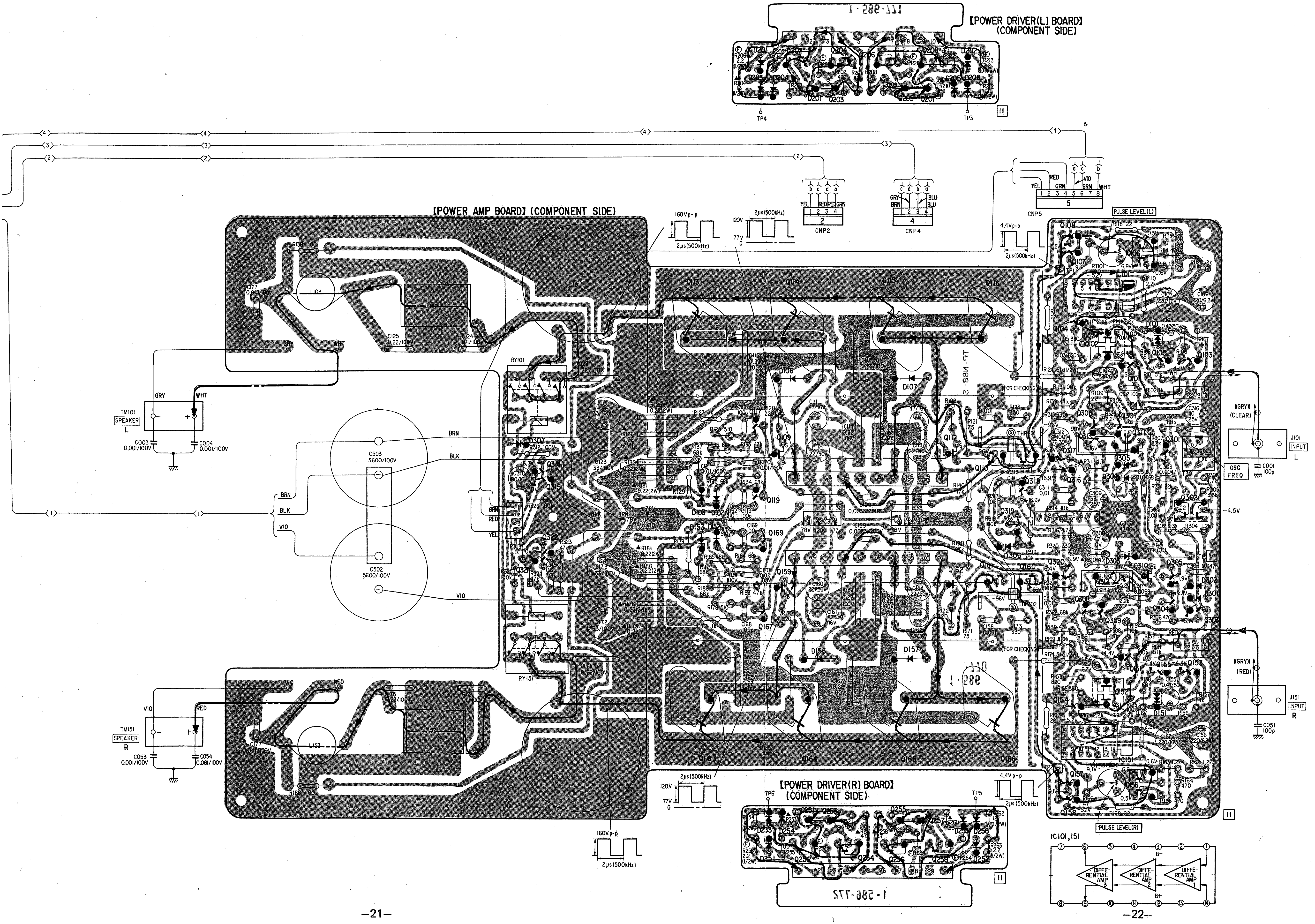
	U S	AEP
C404	0.001 200V	470p 500V
C410	100 160V	33 350V
C501	2200 200V	560 400V
L402	22μH	47μH
R401	10	33
R402	2.2	4.7
R403	330	560
R404	22k(2W)	68k(2W)
R405	47	100
R406	56k	120k
R409	330	560
R410	33k(2W)	120k(1W)
R411	22k	100k
R420	1.5M	3.3M
R421	22k	100k

Note:

- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)((GRY))

- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- [ ]← : indicates side identified with part number.
- ▨ : B+ pattern.
- ▩ : B– pattern.
- Signal Path
  —·–→ : L-CH
  ---→ : R-CH
- [ ]: AEP model
  < >: US model
  no mark: common
- ▲ : nonflammable resistor.
- Ⓕ : fusible resistor.


[POWER DRIVER(L) BOARD]
(COMPONENT SIDE)
1-985-171
TP4
TP3
[POWER AMP BOARD] (COMPONENT SIDE)
160Vp-p
2μs(500kHz)
120V
77V
0
CNP2
CNP4
CNP5
YEL RED RED GRN
GRY BRN BLU BLU
YEL GRN RED VIO BRN WHT
4.4Vp-p
PULSE LEVEL(L)
TM101
SPEAKER
L
C003 0.001/100V
C004 0.001/100V
GRY
WHT
C503 5600/100V
C502 5600/100V
BRN
BLK
VIO
RY101
RY151
L101
L151
TM151
SPEAKER
R
C053 0.001/100V
C054 0.001/100V
RED
FOR CHECKING
OSC FREQ
-4.5V
(GRY)
(CLEAR)
J101
INPUT
L
C001 100p
(GRY)
(RED)
J151
INPUT
R
C051 100p
1-986-170
[POWER DRIVER(R) BOARD]
(COMPONENT SIDE)
TP6
TP5
1-986-172
PULSE LEVEL(R)
IC101,151
DIFFERENTIAL AMP 1
DIFFERENTIAL AMP 2
DIFFERENTIAL AMP 3
B-
B+

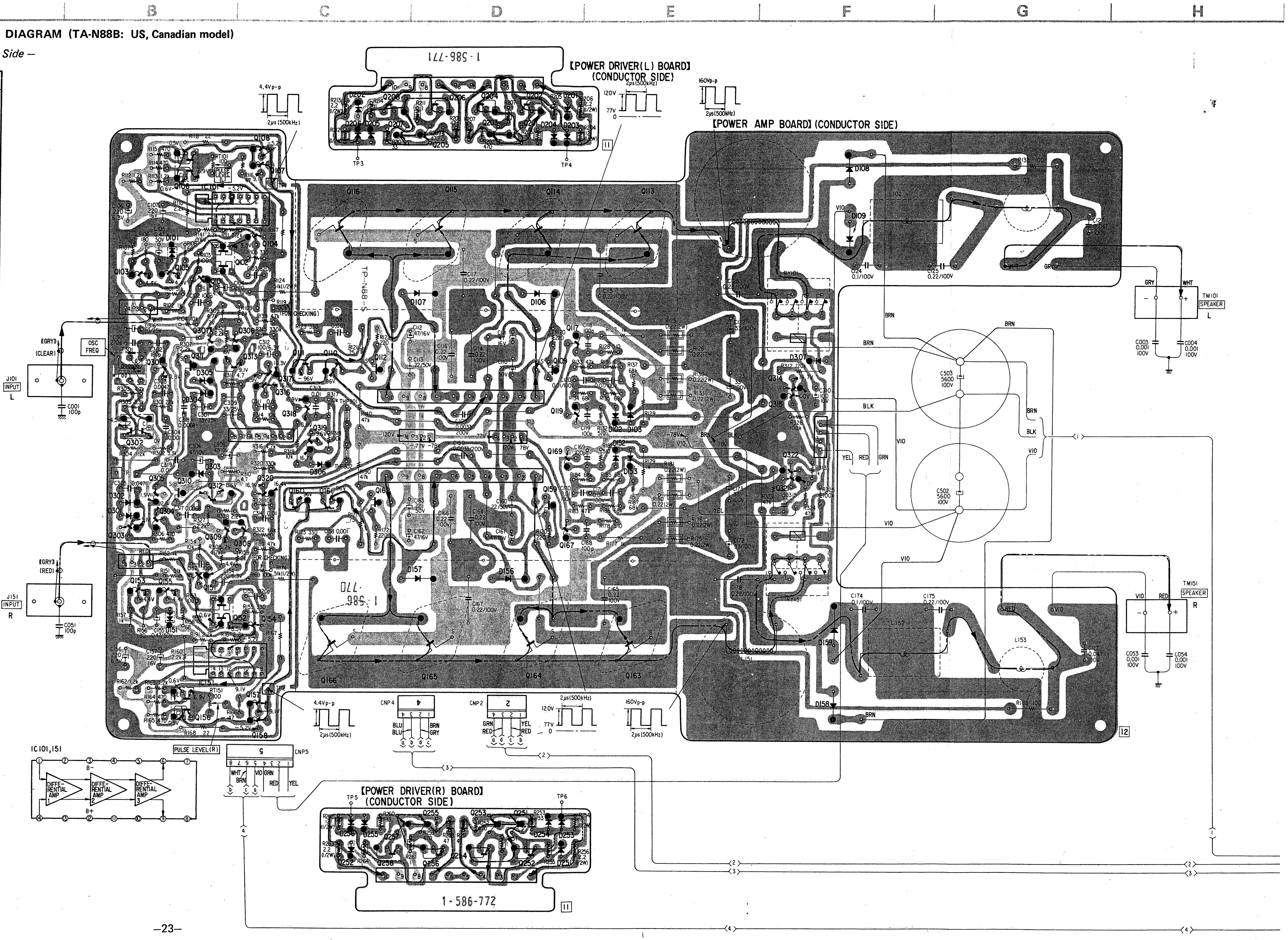
Q, IC	D
202, 206 204, 208	201, 202
201, 205 203, 207	203, 205 204, 206
108	
107, 106	
IC101	
113 114 104 115 116	
102	101
105, 103 101	
	106, 107
117 306, 307	
313	307
109 311 112 301	
314 317 110, 111	305
315 316	304
318 119	103, 102
302	
319	
169	153, 152
322	306
	303
321 161, 160, 320	
310, 305 312	302
162 159 304	301
308, 309 303	
167	
151	156, 157
155, 153	
152	151
154	
163 164 165 IC151 166	
157, 156	
158	
251, 255 253, 257	253, 255 254, 256
252, 256 254, 258	251, 252
Q, IC	D

1
2
3
4
5

4-3. MOUNTING DIAGRAM (TA-N88B: US, Canadian model)

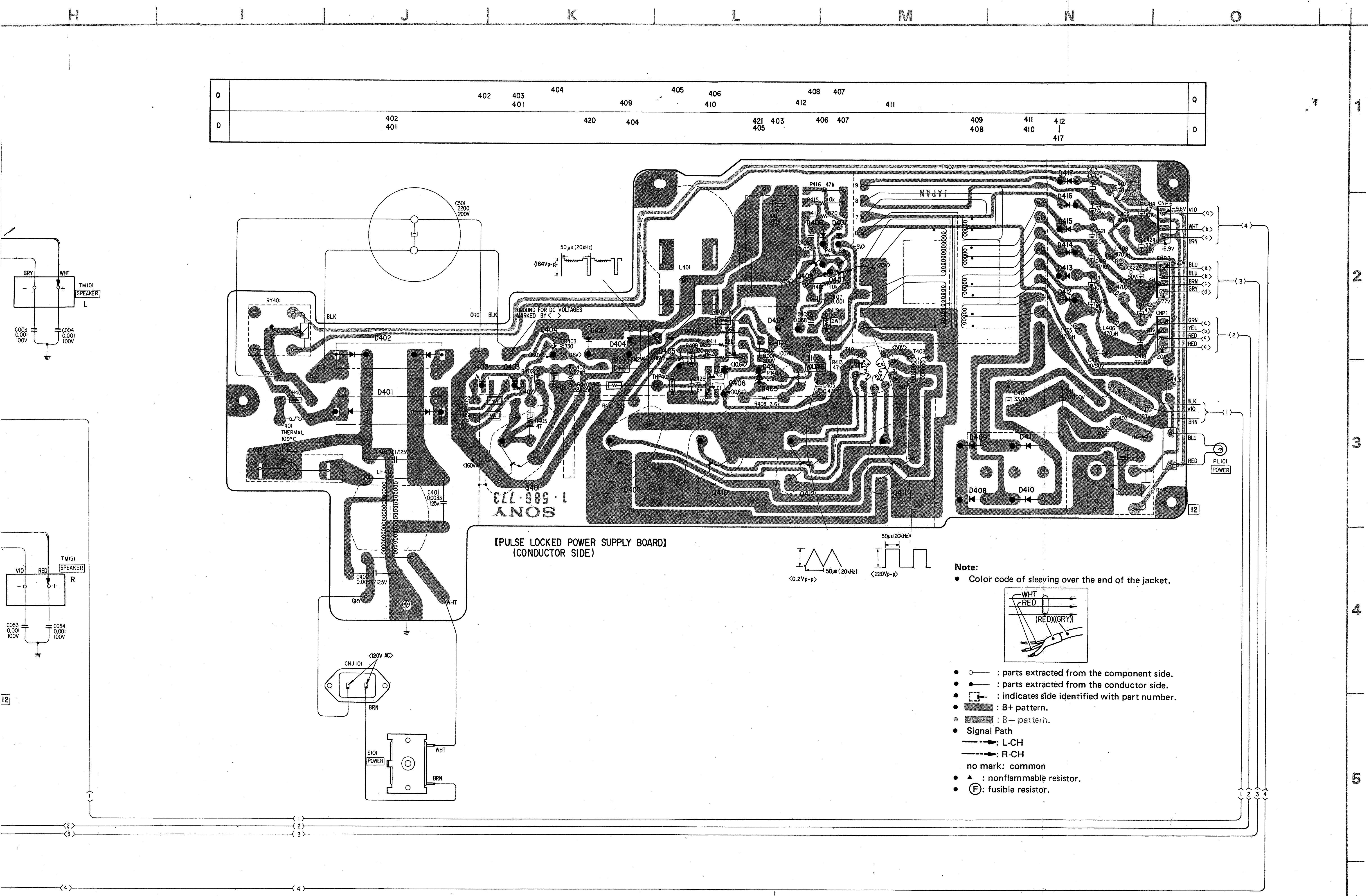
– Conductor Side –

Q, IC	D
208, 204 206, 202	202, 201
207, 203 205, 201	206, 204 205, 203
108	
106 107	
IC101	
116 115 104 114 113	
102	101
103, 105 101	107, 106
307, 306 117	
301, 311 313 111 110	307
109 317 112 316	305
314 315	304
318 119	102, 103
302 319	
169	152, 153
322	306
321	303
305, 310 312, 320	
160, 161 159	302
304 162 303 167 309, 308	301
151	157, 156
153, 155	
152 154	151
166 165 164 163	
IC151	
156 157 158	
257, 253 255, 251	256, 254 255, 253
258, 254 256, 252	252, 251
Q, IC	D



A
B
C
D
E
F
G
H
1
2
3
4
5
1-586-771
【POWER DRIVER(L) BOARD】
(CONDUCTOR SIDE)
【POWER AMP BOARD】(CONDUCTOR SIDE)
【POWER DRIVER(R) BOARD】
(CONDUCTOR SIDE)
1-586-772
1-586-770
TP-N88-S
4.4Vp-p
2μs(500kHz)
120V
77V
0
160Vp-p
TP3
TP4
TP5
TP6
J101
INPUT
L
J151
INPUT
R
C001
100p
C051
100p
[GRY]
(CLEAR)
(RED)
OSC FREQ
PULSE LEVEL(L)
PULSE LEVEL(R)
(FOR CHECKING)
TM101
SPEAKER
L
TM151
SPEAKER
R
C003
0.001
100V
C004
0.001
100V
C053
0.001
100V
C054
0.001
100V
C503
5600
100V
C502
5600
100V
CNP2
CNP4
CNP5
BLU
BRN
GRY
GRN
RED
YEL
WHT
VIO
BLK
IC101,151
DIFFE-RENTIAL AMP 1
DIFFE-RENTIAL AMP 2
DIFFE-RENTIAL AMP 3
B−
B+
11
12

Q	402, 403, 401, 404, 409, 405, 406, 410, 412, 408, 407, 411
D	402, 401, 420, 404, 421, 405, 403, 406, 407, 409, 408, 411, 410, 412 – 417


H
I
J
K
L
M
N
O
1
2
3
4
5
C501 2200 200V
50μs (20kHz)
(164Vp-p)
RY401
BLK
ORG
GROUND FOR DC VOLTAGES MARKED BY〈 〉
D402
D401
TH401
F401 THERMAL 109°C
CB401
C403 0.01/125V
LF401
C401 0.0033 125V
C402 0.0033/125V
GRY
WHT
Q402
Q403
Q404
D420
D404
Q401
Q405
Q406
D403
D405
D406
D407
R403 330
R404 22k(2W)
R405 47
R410 33(1/2W)
R421
R422
R423
THP401
L401
C410 100 160V
R416 47k
R415 10k
R417 820
R414 68
R419 1.2(2W)
R413 47k
R408 3.6k
R411
R409 330
R406
R412 10k
C405 0.47/50V
C406 0.1
C407 0.001
C408 0.0047
C409 0.068
C425 100/10V
C426 22 16V
RT401 2.2
VOLTAGE
T401
T403
T402
JAPAN
D417
D416
D415
D414
D413
D412
C413 47/10V
C414
C415
C416 0.1/50V
C417
C418 47/10V
C419 47/10V
C420 47 10V
C421 10 50V
C422 50V
C423 33 25V
C424 33 25V
L403
L404
L405 470μH
L406 470μH
L407 470μH
L408 470μH
L409 470μH
L410 470μH
CNP1
CNP3
CNP6
9.6V
16.9V
20V
77V
78V
C412 33/100V
C411 33/100V
R418 9
D409
D411
D408
D410
TH402
RY402
Q409
Q410
Q412
Q411
1-586-773
SONY
〈106V〉
〈160V〉
〈5V〉
〈43V〉
〈50V〉
〈10.6V〉
〈16V〉
12
VIO 〈a〉
WHT 〈b〉
BRN 〈c〉
BLU 〈a〉
BLU 〈b〉
BRN 〈c〉
GRY 〈d〉
GRN 〈a〉
YEL 〈b〉
RED 〈c〉
RED 〈d〉
BLK
VIO
BRN
BLU
RED
PL101 POWER
〈4〉
〈3〉
〈2〉
〈1〉
TM101 SPEAKER L
GRY
WHT
C003 0.001 100V
C004 0.001 100V
TM151 SPEAKER R
VIO
RED
C053 0.001 100V
C054 0.001 100V
CNJ101
〈120V AC〉
BRN
S101 POWER
WHT
BRN
50μs (20kHz)
〈0.2Vp-p〉
〈220Vp-p〉
WHT
RED
(RED)((GRY))

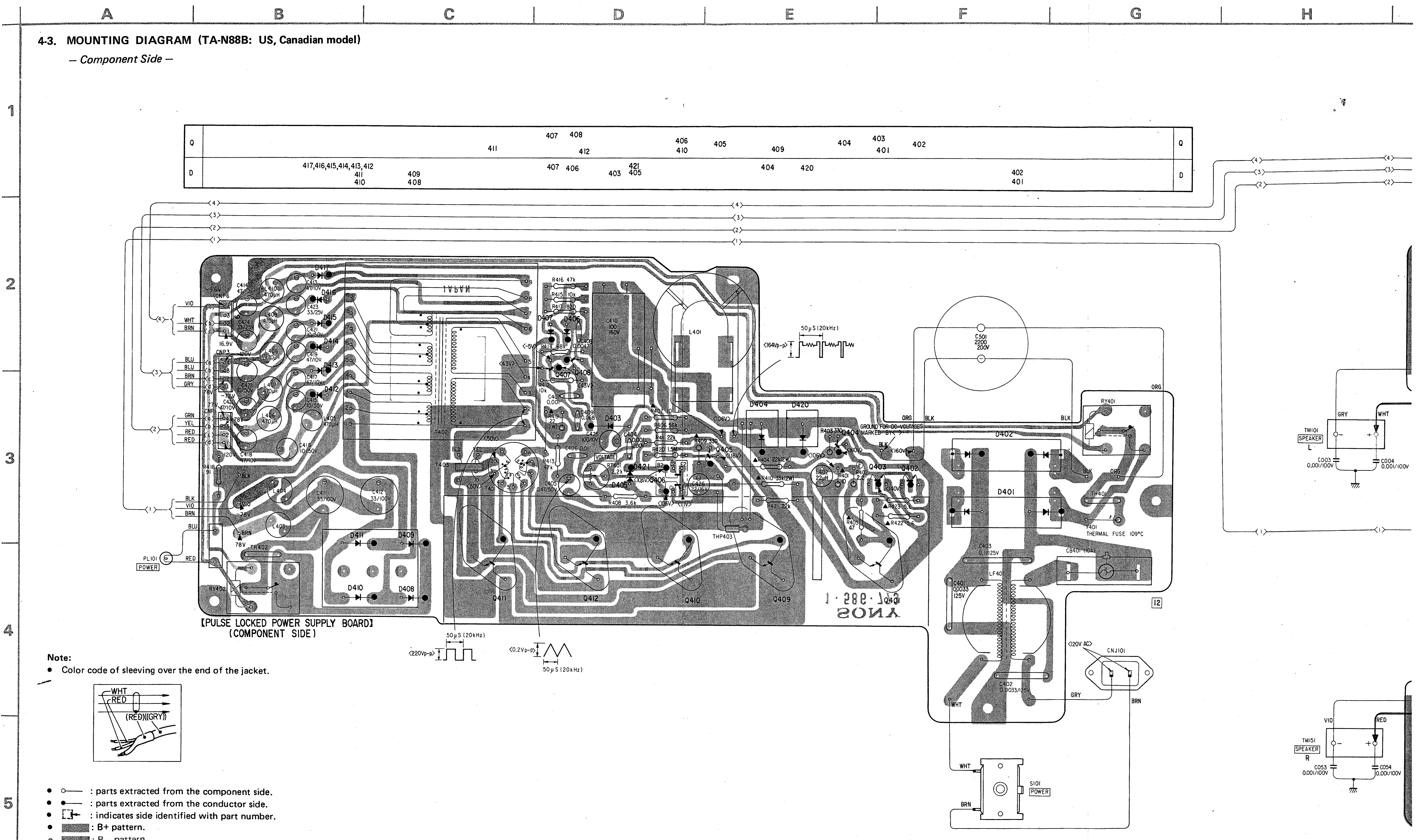
【PULSE LOCKED POWER SUPPLY BOARD】
(CONDUCTOR SIDE)

Note:

- Color code of sleeving over the end of the jacket.
- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- [ ]← : indicates side identified with part number.
- ▨ : B+ pattern.
- ▨ : B– pattern.
- Signal Path
  - —·–►: L-CH
  - —--►: R-CH
  - no mark: common
- ▲ : nonflammable resistor.
- Ⓕ: fusible resistor.

4-3. MOUNTING DIAGRAM (TA-N88B: US, Canadian model)

– Component Side –

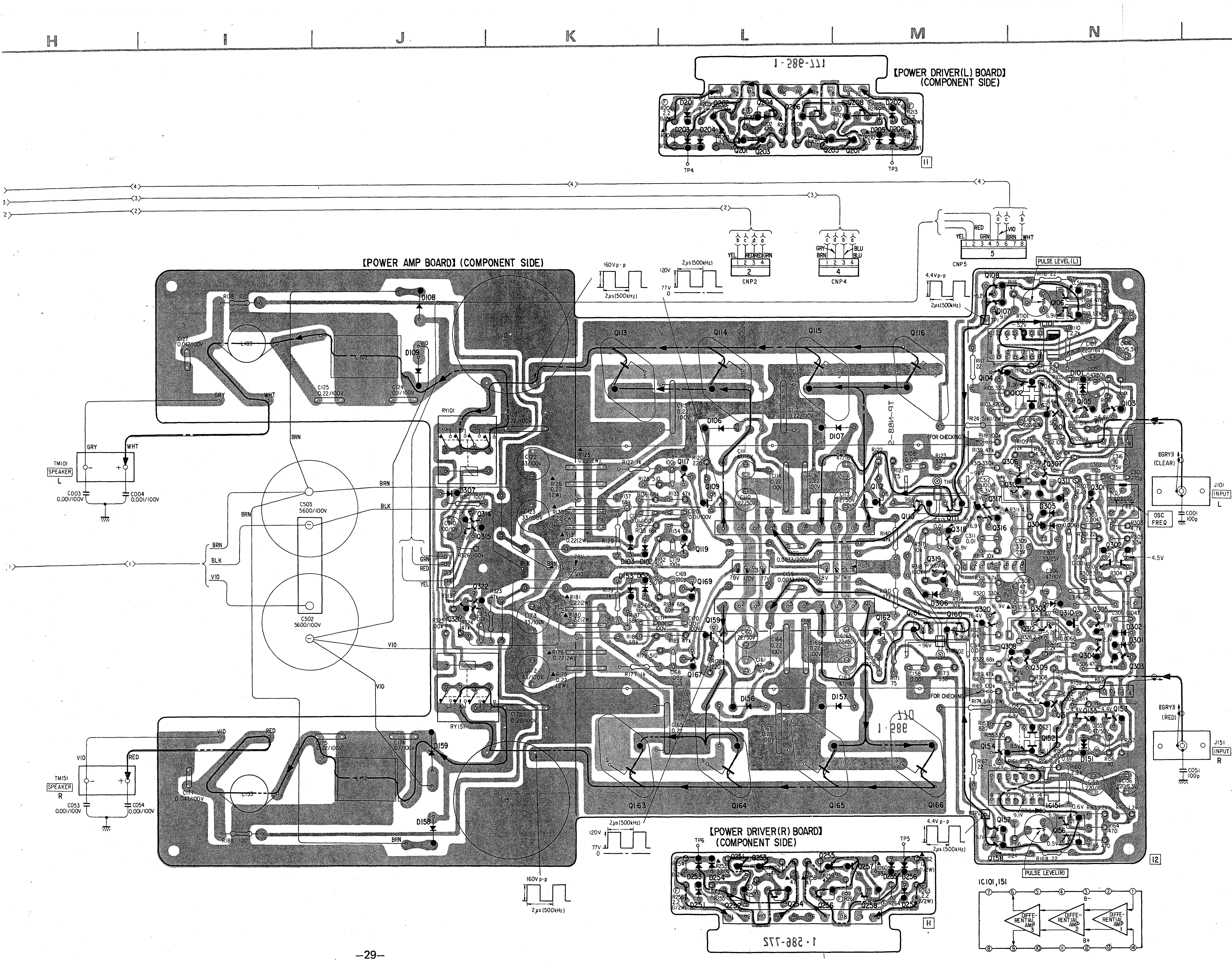

A
B
C
D
E
F
G
H
1
2
3
4
5
Q
411
407 408
412
406
410
405
409
404
403
401
402
D
417,416,415,414,413,412
411
410
409
408
407 406
403
421
405
404
420
402
401
VIO
WHT
BRN
BLU
BLU
BRN
GRY
GRN
YEL
RED
RED
BLK
VIO
BRN
BLU
RED
PL101
POWER
CNP6
CNP3
C414
L410
C413
D417
D416
D415
D414
D413
D412
C423 33/25V
C421 10/50V
C419 47/10V
C417 47/10V
C415 10/50V
L409
L408
L407
L406
L405 470μH
C416 10/50V
C418 47/10V
C422
C420 47/10V
9.6V
16.9V
R418 91
L404
L403
C411 33/100V
C412 33/100V
RY402
TR402
D411
D409
D410
D408
78V
-78V
JAPAN
T402
T403
T401
<50V>
<-5V>
<43V>
R416 47k
R415 10k
R417 820
D407
D406
C410 100 160V
R414 68k
C409 0.0047
Q407
Q408
R412 10k
C407 0.001
R419 22 (2W)
C408 0.068
D403
C425 100/10V
C404 0.001 200V
C406 0.01
R413 47k
C405 0.47/50V
VOLTAGE
RT401 2.2k
D405
D421
Q406
R408 3.6k
R407 10
R406 56k
R411 22k
R420 1.5M
R409 330
Q405
C426 22/16V
L401
THP403
Q411
Q412
Q410
Q409
50μS (20kHz)
<164Vp-p>
<106V>
<16V>
<11V>
<60V>
<160V>
D404
D420
R403 330
Q404
GROUND FOR DC VOLTAGES MARKED BY
R404 22k(2W)
R410 33k(2W)
R421 22k
L402 22μH
R401 10
R402 2.2
Q403
Q402
Q401
<140V>
R423 5.6
R422 5.6
R405 47
1-586-772
SONY
C501 2200 200V
RY401
ORG
BLK
D402
D401
TH401
F401 THERMAL FUSE 109°C
C403 0.1/125V
CB401 (10A)
LF401
C401 0.0033 125V
C402 0.0033/125V
12
<120V AC>
CNJ101
GRY
BRN
WHT
S101 POWER
TM101 SPEAKER L
C003 0.001/100V
C004 0.001/100V
TM151 SPEAKER R
C053 0.001/100V
C054 0.001/100V
【PULSE LOCKED POWER SUPPLY BOARD】
(COMPONENT SIDE)
50μS (20kHz)
<220Vp-p>
<0.2Vp-p>
50μS (20kHz)

Note:

- Color code of sleeving over the end of the jacket.

WHT
RED
(RED)((GRY))

- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- [ ]← : indicates side identified with part number.
- ▨ : B+ pattern.
- ▨ : B– pattern.
- Signal Path
  —-→ : L-CH
  ---→ : R-CH
  no mark: common
- ▲ : nonflammable resistor.
- Ⓕ : fusible resistor.


H
I
J
K
L
M
N
O
[POWER DRIVER(L) BOARD] (COMPONENT SIDE)
1-586-771
[POWER AMP BOARD] (COMPONENT SIDE)
[POWER DRIVER(R) BOARD] (COMPONENT SIDE)
1-586-772
1-586-770
TP-VN-88
CNP2
CNP4
CNP5
TM101 SPEAKER L
TM151 SPEAKER R
J101 INPUT L
J151 INPUT R
((GRY)) (CLEAR)
((GRY)) (RED)
OSC FREQ
PULSE LEVEL(L)
PULSE LEVEL(R)
FOR CHECKING
C503 5600/100V
C502 5600/100V
RY101
RY151
160Vp-p
2μs(500kHz)
120V
77V
0
4.4Vp-p
IC101, 151
DIFFE-RENTIAL AMP 1
DIFFE-RENTIAL AMP 2
DIFFE-RENTIAL AMP 3
B-
B+

Q, IC	D
202, 206 204, 208	201, 202
201, 205 203, 207	203, 205 204, 206
108	
107, 106	
IC101	
113 114 104 115 116	
102	101
105, 103 101	
	106, 107
117 306, 307	
313	307
109 311 112 301	
317 314 110, 111	305
316 315	304
318 119	103, 102
302	
319	
169	153, 152
322	306 303
321 161, 160, 320	
310, 305 312	302
162 159 304	301
308, 309 303	
167	
151	156, 157
155, 153	
152	151
154	
163 164 165 IC151 166	
157, 156	
158	
251, 255 253, 257	253, 255 254, 256
252, 256 254, 258	251, 252
Q, IC	D

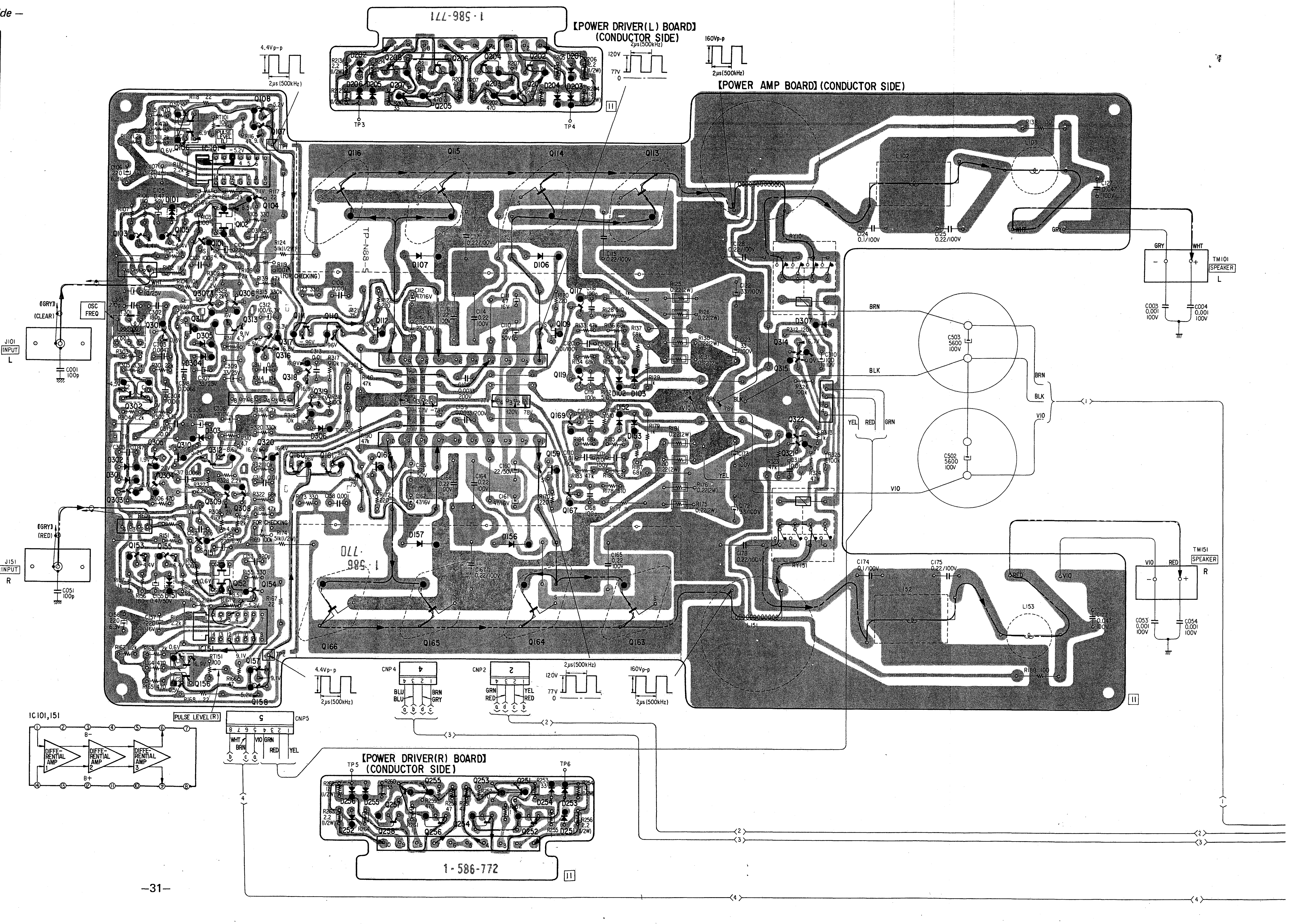
1
2
3
4
5

A B C D E F G H

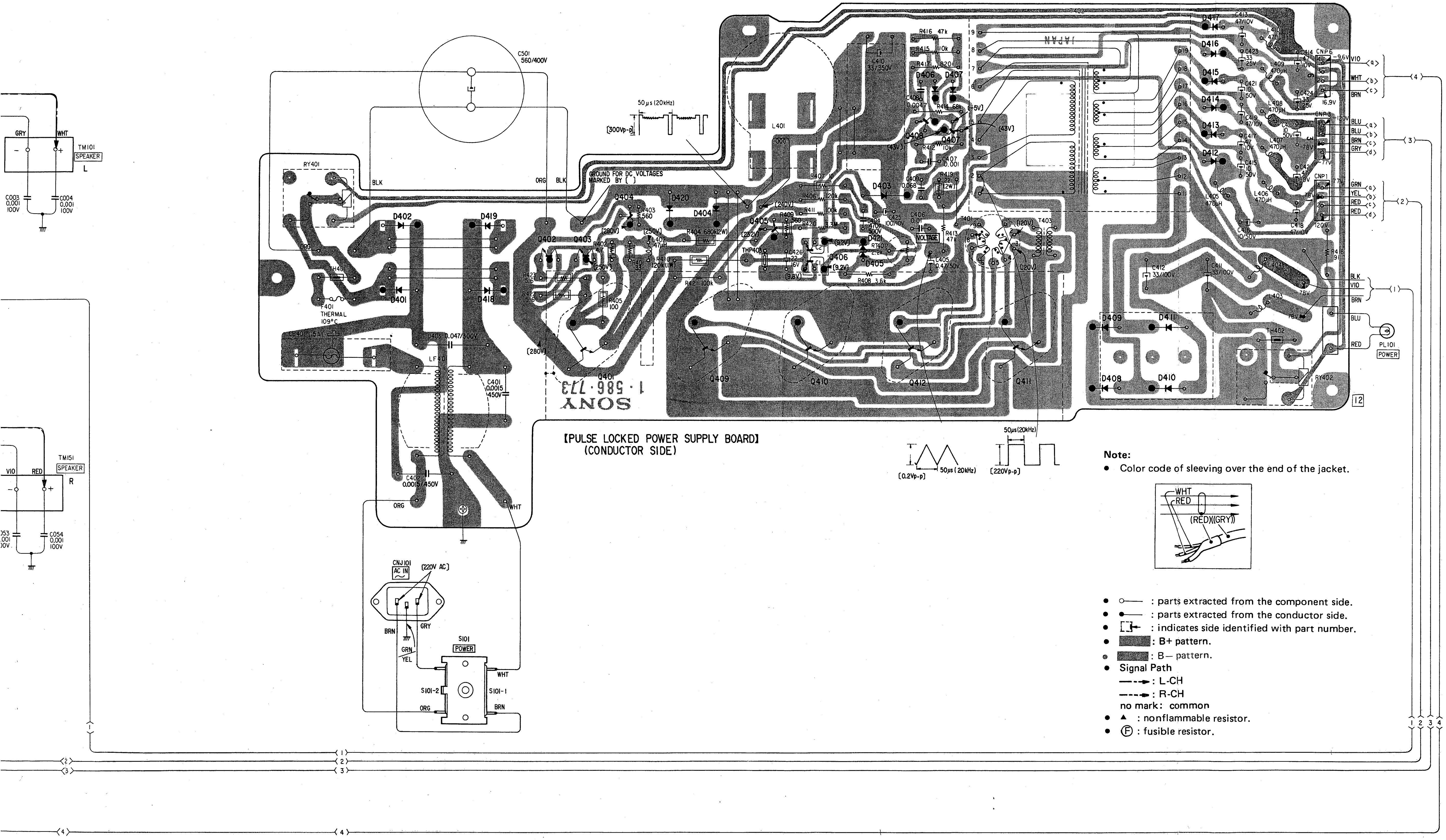
4-4. MOUNTING DIAGRAM (TA-N88B: AEP, UK model)

– Conductor Side –

Q, IC	D
208, 204 206, 202	202, 201
207, 203 205, 201	206, 204 205, 203
108	
106 107	
IC101	
116 115 114 113	
104	
	101
102	
103, 105 101	
	107, 106
307, 306 117	
301, 311 111	307
313 110	
109 317	305
112 316	
314	304
315	
318 119	102, 103
302	
319	
169	152, 153
322	306
321	303
305, 310	
312, 320	
160, 161	302
159	
304 162	301
303 167	
309, 308	
151	157, 156
153, 155	
152	
154	151
166 165 164 163	
IC151	
156 157	
158	
257, 253 255, 251	256, 254 255, 253
258, 254 256, 252	252, 251
Q, IC	D


1
2
3
4
5
【POWER DRIVER(L) BOARD】
(CONDUCTOR SIDE)
1-586-771
【POWER AMP BOARD】(CONDUCTOR SIDE)
【POWER DRIVER(R) BOARD】
(CONDUCTOR SIDE)
1-586-772
1-586-770
TP-N88-S
4.4Vp-p
2μs(500kHz)
120V
77V
0
160Vp-p
J101
INPUT
L
J151
INPUT
R
(GRY)
(CLEAR)
(RED)
C001
100p
C051
100p
OSC FREQ
PULSE LEVEL(R)
(FOR CHECKING)
TM101
SPEAKER
L
TM151
SPEAKER
R
GRY
WHT
RED
BRN
BLK
YEL
GRN
VIO
BLU
C003
0.001
100V
C004
0.001
100V
C053
0.001
100V
C054
0.001
100V
C503
5600
100V
C502
5600
100V
CNP4
CNP2
CNP5
TP3
TP4
TP5
TP6
IC101,151
DIFFE-RENTIAL AMP 1
DIFFE-RENTIAL AMP 2
DIFFE-RENTIAL AMP 3
B−
B+

	H	I	J	K	L	M	N	O	
Q				402 403 401 404 409	405 406 410	408 412 407 411			Q
D			402 401 419 418	420 404	421 405 403	406 407	409 408 411 410 412 | 417		D


1
2
3
4
5
C501 560/400V
50μs (20kHz)
[300Vp-p]
GRY
WHT
TM101 SPEAKER
L
C003 0.001 100V
C004 0.001 100V
RY401
BLK
ORG
GROUND FOR DC VOLTAGES MARKED BY [ ]
L401
R416 47k
R415 10k
R417 820
C410 33/350V
D406
D407
C408 0.0047
R414 68k
(-5V)
(43V)
Q408
Q407
R412
C407 0.001
C409 0.068
R419 2.7 (2W)
D403
R407
R406 120k
R411 100k
R409 560
R410 10k
Q404
D420
D404
R403 560
(280V)
(250V)
R401 47μH
R404 680 (2W)
Q405
(232V)
THP401
C426 22 16V
(9.6V)
(12V)
(9.2V)
D421
RT401 2.2k
Q406
D405
R408 3.6k
C425 100/10V
C406 0.01
VOLTAGE
R413 47k
T401
L405 0.47/50V
(120V)
T403
(120V)
Q402
Q403
R402 47
C405 33
R410 120k (1W)
R422 100k
R423 5.6
R405 100
(280V)
Q401
1-586-773
SONY
D402
D419
D401
D418
TH401
F401 THERMAL 109°C
CS401 (1.5A)
C403 0.047/300V
LF401
C401 0.0015 450V
C402 0.0015/450V
ORG
WHT
T402
JAPAN
D417
C413 47/10V
D416
C423 33 25V
D415
C421 10 50V
D414
C419 47/10V
D413
C417 47 10V
D412
C415 10 50V
L410 470μH
L409 470μH
L408 470μH
L407 470μH
L406 470μH
C414 47 10V
C424 33 25V
C422 10 50V
C420 47 10V
C416 10/50V
C418 47/10V
CNP6
9.6V
16.9V
CNP3
120V
-78V
-77V
CNP1
-78V
120V
VIO
WHT
BRN
BLU
BLU
BRN
GRY
GRN
YEL
RED
RED
(a)
(b)
(c)
(d)
L404
L403
C412 33/100V
C411 33/100V
R418
78V
-76V
BLK
VIO
BRN
BLU
RED
PL101 POWER
D409
D411
D408
D410
TH402
RY402
Q409
Q410
Q412
Q411
[0.2Vp-p]
50μs (20kHz)
[220Vp-p]
12
TM151 SPEAKER
VIO
RED
R
C053 0.001 100V
C054 0.001 100V
CNJ101 AC IN
(220V AC)
BRN
GRY
GRN
YEL
S101 POWER
S101-2
S101-1
WHT
ORG
BRN
WHT
RED
(RED)(GRY)

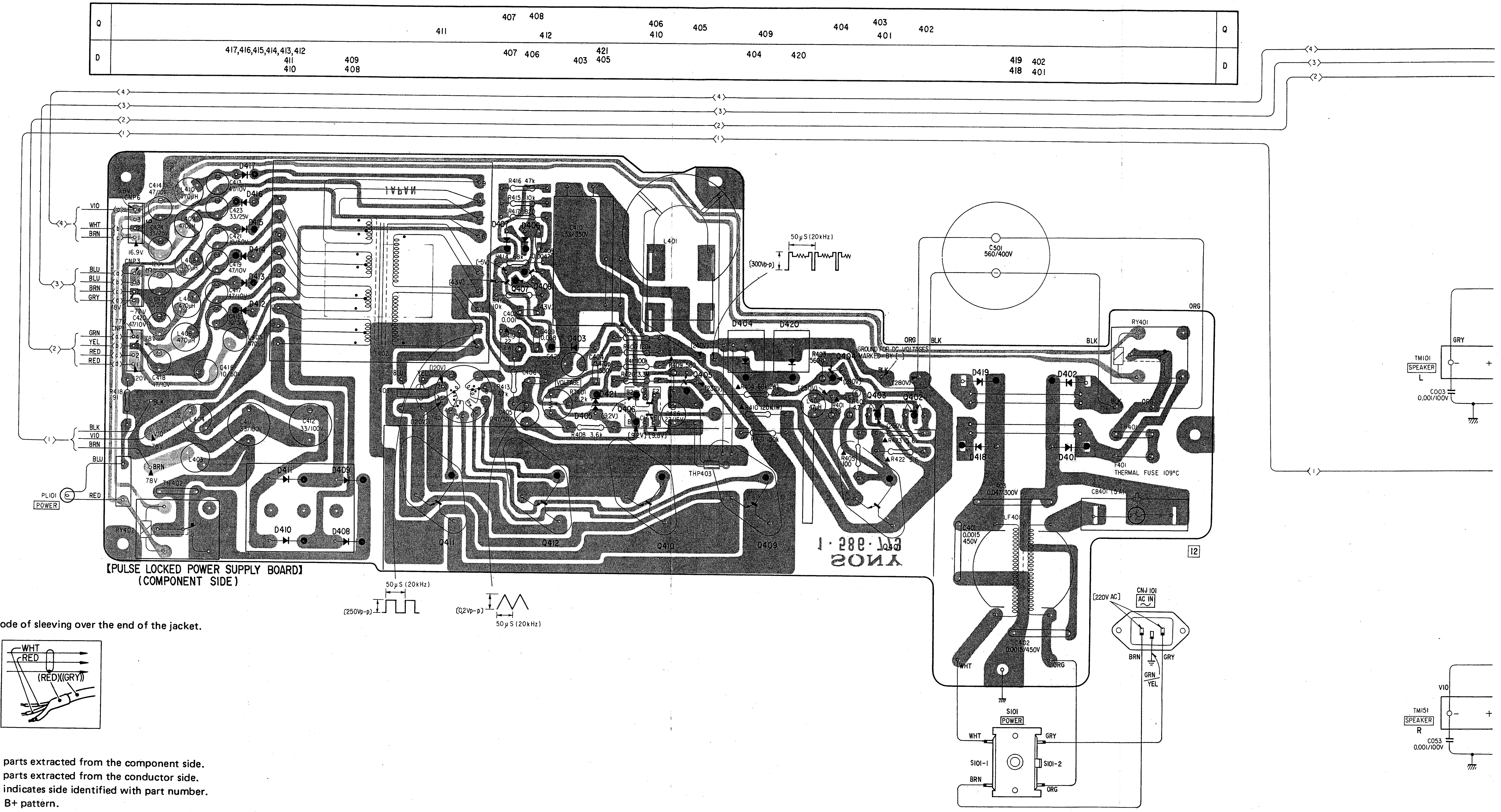
【PULSE LOCKED POWER SUPPLY BOARD】
(CONDUCTOR SIDE)

Note:

- Color code of sleeving over the end of the jacket.
- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- [ ]← : indicates side identified with part number.
- ▨ : B+ pattern.
- ▨ : B– pattern.
- Signal Path
  - —·—▸ : L-CH
  - - - -▸ : R-CH
  - no mark: common
- ▲ : nonflammable resistor.
- Ⓕ : fusible resistor.

4-4. MOUNTING DIAGRAM (TA-N88B: AEP, UK model)

– Component Side –

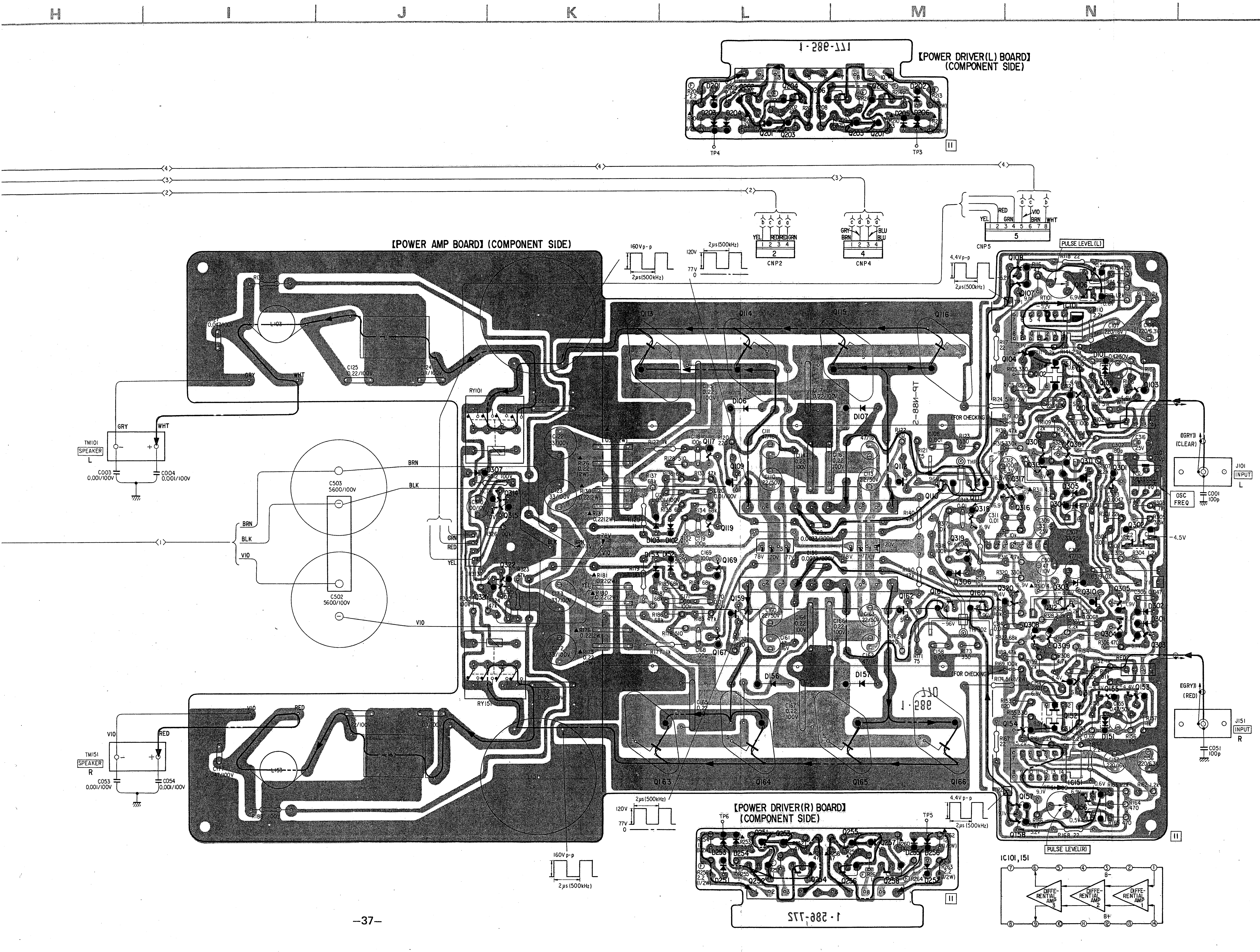

Q 411 407 408 412 406 410 405 409 404 403 401 402
D 417,416,415,414,413,412 411 410 409 408 407 406 403 421 405 404 420 419 418 402 401
[PULSE LOCKED POWER SUPPLY BOARD]
(COMPONENT SIDE)
VIO
WHT
BRN
BLU
BLU
BRN
GRY
GRN
YEL
RED
RED
BLK
VIO
BRN
BLU
RED
PL101
POWER
RY402
CNP6
CNP3
16.9V
78V
-78V
L401
C501 560/400V
50μS (20kHz)
(300Vp-p)
(250Vp-p)
(0.2Vp-p)
ORG
BLK
GROUND FOR DC VOLTAGES MARKED BY [ ]
RY401
TM101
SPEAKER
L
C003 0.001/100V
GRY
F401
THERMAL FUSE 109°C
CB401
THP403
SONY
1-586-173
12
C401 0.0015 450V
LF401
C402 0.0015/450V
WHT
ORG
[220V AC]
CNJ 101
AC IN
BRN
GRY
GRN
YEL
S101
POWER
S101-1
S101-2
TM151
SPEAKER
R
C053 0.001/100V
Q411
Q412
Q410
Q409
D410
D411
D408
D409
D417
D416
D415
D414
D413
D412
D419
D418
D402
D401
D404
D420
L403
L404
L405
L406
C412 33/100V
C411 33/100V

Note:

- Color code of sleeving over the end of the jacket.

WHT
RED
(RED)(GRY)

- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- [ ]← : indicates side identified with part number.
- ▨ : B+ pattern.
- ▨ : B– pattern.
- Signal Path
  - —·—► : L-CH
  - ––––► : R-CH
  - no mark: common
- ▲ : nonflammable resistor.
- Ⓕ : fusible resistor.


H
I
J
K
L
M
N
O
【POWER DRIVER(L) BOARD】
(COMPONENT SIDE)
TP4
TP3
【POWER AMP BOARD】 (COMPONENT SIDE)
CNP2
CNP4
CNP5
160V p-p
2μs(500kHz)
120V
77V
0
4.4V p-p
PULSE LEVEL(L)
PULSE LEVEL(R)
TM101
SPEAKER
L
TM151
SPEAKER
R
C003 0.001/100V
C004 0.001/100V
C053 0.001/100V
C054 0.001/100V
C503 5600/100V
C502 5600/100V
BRN
BLK
V10
GRY
WHT
RED
YEL
GRN
BLU
RY101
RY151
L103
L153
FOR CHECKING
(GRY)
(CLEAR)
(RED)
J101
INPUT
L
J151
INPUT
R
C001 100p
C051 100p
OSC FREQ
-4.5V
【POWER DRIVER(R) BOARD】
(COMPONENT SIDE)
TP5
TP6
1-586-772
IC101, 151
DIFFE-RENTIAL AMP 1
DIFFE-RENTIAL AMP 2
DIFFE-RENTIAL AMP 3
B-
B+
1
2
3
4
5

Q, IC	D
202, 206 204, 208	201, 202
201, 205 203, 207	203, 205 204, 206
108	
107, 106	
IC101	
113 114 104 115 116	
102	101
105, 103	
101	
	106, 107
117	
306, 307	
313	307
109 311 112 301	
317	
314 110, 111	305
315 316	304
318	
119	103, 102
302	
319	
169	153, 152
322	306
	303
321	
161, 160, 320	
310, 305	302
312	
162 159 304	301
308, 309	
303	
167	
151	156, 157
155, 153	
152	151
154	
163 164 165 IC151 166	
157, 156	
158	
251, 255 253, 257	253, 255 254, 256
252, 256 254, 258	251, 252
Q, IC	D

STEREO POWER AMPLIFIER

TA-N88/N88B

TA-N88 (Panel : Silver)

US Model
AEP Model

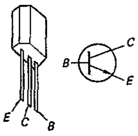
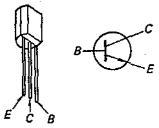
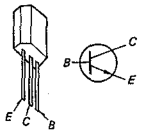
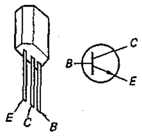
TA-N88B (Panel : Black)

UK Model
AEP Model
US Model
Canadian Model

CORRECTION

Please correct the TA-N88/N88B service manual (Part No. 9-958-493-02).

June, 1978

PAGE AND SECTION	INCORRECT	CORRECT
P. 1 **SPECIFICATIONS**	**Power Consumption:** 135W (US, Canadian model)	**Power Consumption:** 135W (US model) 480VA (Canadian model)
P. 13 **4-1. MOUNTING DIAGRAMS** **Replacement Semiconductors** For replacement, use semiconductors except in ( ).	Q103, 153, 105, 155, 107, 157, 301, 304, 306, 308, 314–316, 321, 322, 408 : 2SC1364 (2SC634A) 119, 169 : 2SC926A 	Q103, 153, 105, 155, 107, 157, 301, 304, 306, 308, 314–316, 321, 322, 408 : 2SC1364 | (2SC634A)   Q119, 169: 2SC926A 

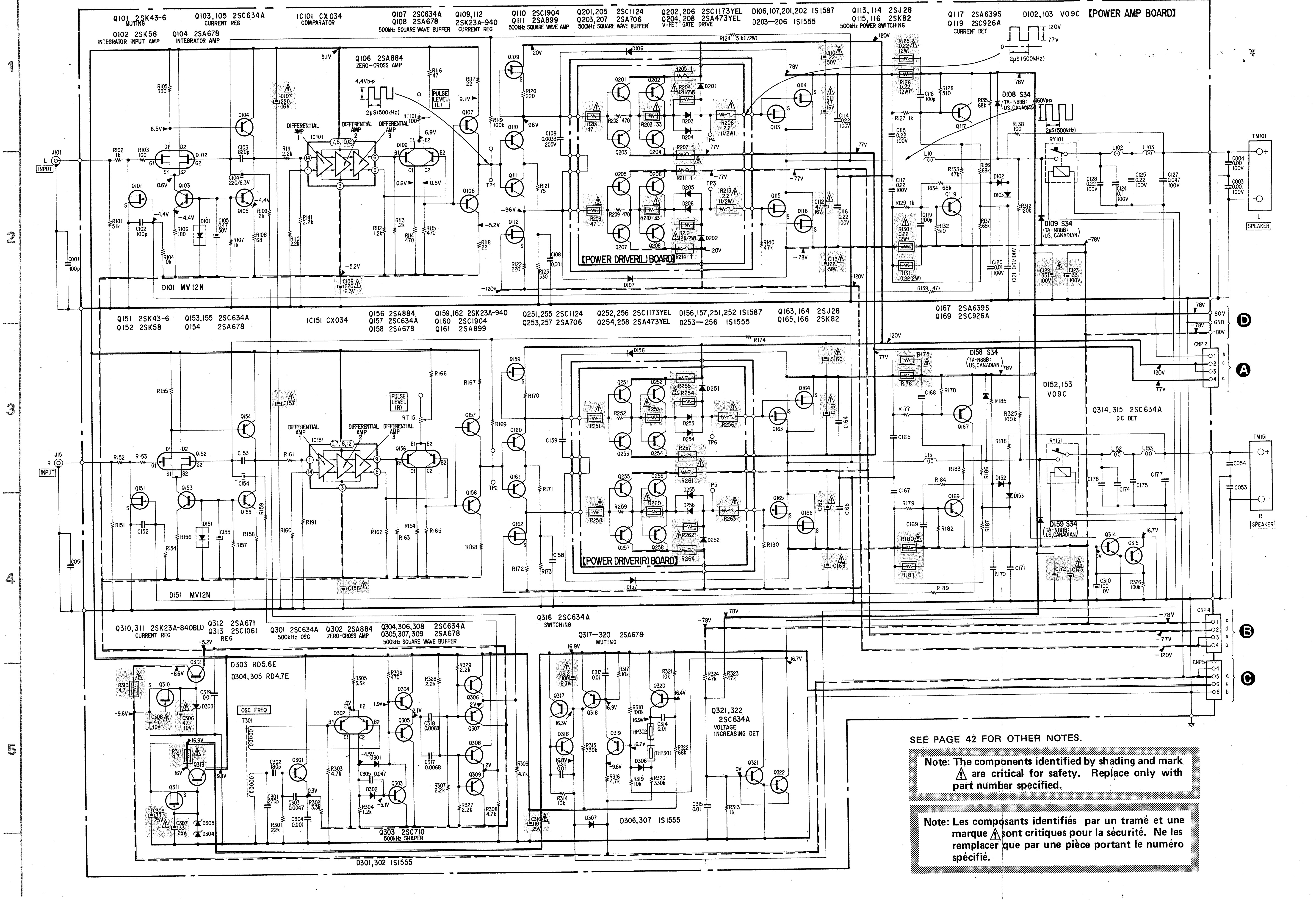
SONY®
SERVICE MANUAL

9-958-493-91

Sony Corporation
© 1978

78F0471-1
Printed in Japan

4-3. SCHEMATIC DIAGRAM *– Amplifier Section –*


A
B
C
D
E
F
G
H
1
2
3
4
5
Q101 2SK43-6 MUTING
Q102 2SK58 INTEGRATOR INPUT AMP
Q103,105 2SC634A CURRENT REG
Q104 2SA678 INTEGRATOR AMP
IC101 CX034 COMPARATOR
Q107 2SC634A
Q108 2SA678
500kHz SQUARE WAVE BUFFER
Q109,112 2SK23A-940 CURRENT REG
Q110 2SC1904
Q111 2SA899
500kHz SQUARE WAVE AMP
Q201,205 2SC1124
Q203,207 2SA706
500kHz SQUARE WAVE BUFFER
Q202,206 2SC1173YEL
Q204,208 2SA473YEL
V-FET GATE DRIVE
D106,107,201,202 1S1587
D203—206 1S1555
Q113,114 2SJ28
Q115,116 2SK82
500kHz POWER SWITCHING
Q117 2SA639S
Q119 2SC926A
CURRENT DET
D102,103 V09C
【POWER AMP BOARD】
Q106 2SA884 ZERO-CROSS AMP
4.4Vp-p
2μS(500kHz)
PULSE LEVEL (L)
DIFFERENTIAL AMP
120V
77V
2μS(500kHz)
160Vp-p
D108 S34 (TA-N88B: US,CANADIAN)
D109 S34 (TA-N88B: US,CANADIAN)
【POWER DRIVER(L) BOARD】
D101 MV12N
J101 L INPUT
TM101 L SPEAKER
RY101
Q151 2SK43-6
Q152 2SK58
Q153,155 2SC634A
Q154 2SA678
IC151 CX034
Q156 2SA884
Q157 2SC634A
Q158 2SA678
Q159,162 2SK23A-940
Q160 2SC1904
Q161 2SA899
Q251,255 2SC1124
Q253,257 2SA706
Q252,256 2SC1173YEL
Q254,258 2SA473YEL
D156,157,251,252 1S1587
D253—256 1S1555
Q163,164 2SJ28
Q165,166 2SK82
Q167 2SA639S
Q169 2SC926A
D158 S34 (TA-N88B: US,CANADIAN)
D159 S34 (TA-N88B: US,CANADIAN)
D152,153 V09C
Q314,315 2SC634A DC DET
PULSE LEVEL (R)
【POWER DRIVER(R) BOARD】
D151 MV12N
J151 R INPUT
TM151 R SPEAKER
RY151
80V GND -80V
CNP2
CNP4
CNP5
Q310,311 2SK23A-840BLU CURRENT REG
Q312 2SA671
Q313 2SC1061
REG
Q301 2SC634A 500kHz OSC
Q302 2SA884 ZERO-CROSS AMP
Q304,306,308 2SC634A
Q305,307,309 2SA678
500kHz SQUARE WAVE BUFFER
D303 RD5.6E
D304,305 RD4.7E
OSC FREQ
T301
Q303 2SC710 500kHz SHAPER
D301,302 1S1555
Q316 2SC634A SWITCHING
Q317—320 2SA678 MUTING
Q321,322 2SC634A VOLTAGE INCREASING DET
D306,307 1S1555

SEE PAGE 42 FOR OTHER NOTES.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-4. SCHEMATIC DIAGRAM *– Power Supply Section –*

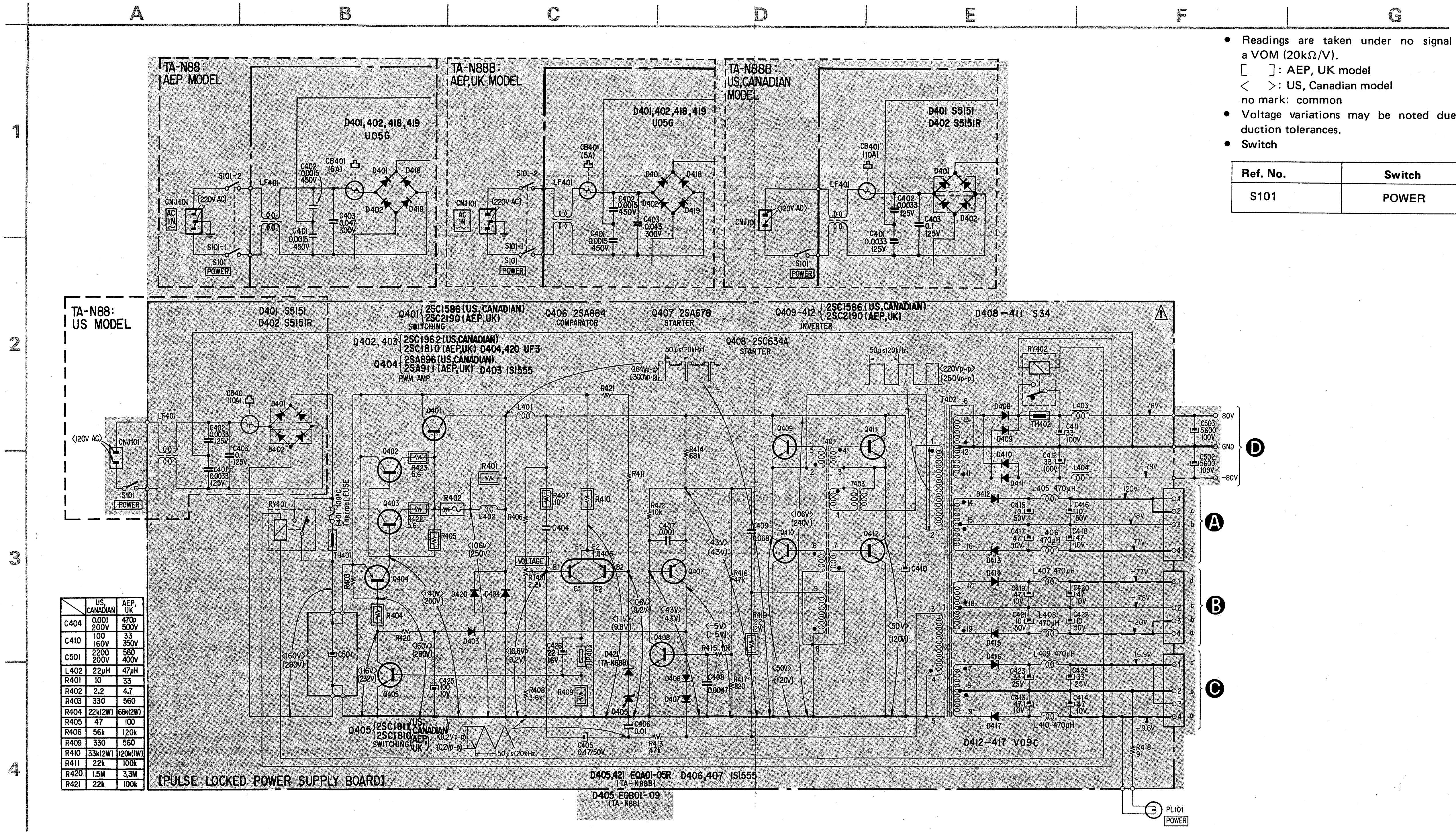
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note:

- All capacitors are in μF unless otherwise noted. pF=μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000Ω, MΩ = 1000kΩ
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ⌇ : fusible resistor.
- —— : B+ bus.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- - - - : B– bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20kΩ/V).
  [ ]: AEP, UK model
  < >: US, Canadian model
  no mark: common
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S101	POWER	OFF


A
B
C
D
E
F
G
1
2
3
4
TA-N88: AEP MODEL
D401,402,418,419 U05G
TA-N88B: AEP,UK MODEL
D401,402,418,419 U05G
TA-N88B: US,CANADIAN MODEL
D401 S5151
D402 S5151R
TA-N88: US MODEL
D401 S5151
D402 S5151R
CNJ101
AC IN
(220V AC)
<120V AC>
S101-1
S101-2
S101 POWER
LF401
CB401 (5A)
CB401 (10A)
C401 0.0015 450V
C402 0.0015 450V
C403 0.047 300V
C403 0.043 300V
C401 0.0033 125V
C402 0.0033 125V
C403 0.1 125V
Q401 {2SC1586 (US, CANADIAN) 2SC2190 (AEP,UK) SWITCHING
Q402, 403 {2SC1962 (US,CANADIAN) 2SC1810 (AEP,UK)
Q404 {2SA896 (US,CANADIAN) 2SA911 (AEP,UK) PWM AMP
D404,420 UF3
D403 1S1555
Q406 2SA884 COMPARATOR
Q407 2SA678 STARTER
Q408 2SC634A STARTER
Q409-412 {2SC1586 (US,CANADIAN) 2SC2190 (AEP,UK) INVERTER
D408-411 S34
RY401
RY402
F401 109°C Thermal FUSE
TH401
TH402
VOLTAGE
RT401 2.2k
T401
T402
T403
L401
L402
L403
L404
L405 470μH
L406 470μH
L407 470μH
L408 470μH
L409 470μH
L410 470μH
50μs(20kHz)
(164Vp-p) (300Vp-p)
<220Vp-p> (250Vp-p)
<106V> [250V]
<140V> [250V]
<160V> (280V)
<116V> (232V)
<43V> [43V]
<-5V> (-5V)
<50V> (120V)
<11V> (9.8V)
<10.6V> (9.2V)
78V
-78V
80V
GND
-80V
120V
77V
-77V
76V
-76V
-120V
16.9V
-9.6V
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Q405 {2SC1811 (US, CANADIAN) 2SC1810 (AEP, UK) SWITCHING
D405,421 EQA01-05R (TA-N88B)
D406,407 1S1555
D405 EQB01-09 (TA-N88)
D412-417 V09C
R418 91
PL101 POWER
【PULSE LOCKED POWER SUPPLY BOARD】

	US, CANADIAN	AEP, UK
C404	0.001 200V	470p 500V
C410	100 160V	33 350V
C501	2200 200V	560 400V
L402	22μH	47μH
R401	10	33
R402	2.2	4.7
R403	330	560
R404	22k(2W)	68k(2W)
R405	47	100
R406	56k	120k
R409	330	560
R410	33k(2W)	120k(1W)
R411	22k	100k
R420	1.5M	3,3M
R421	22k	100k